



UNIVERSITY
OF ALBERTA

2023-24

Department of Critical Care Medicine

Annual Report

JULY 1, 2023 - JUNE 30, 2024

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Treaty acknowledgement

The University of Alberta respectfully acknowledges that we are situated on Treaty 6 territory, traditional lands of First Nations and Métis people.

The University of Alberta acknowledges that we are located on Treaty 6 territory, and respects the histories, languages, and cultures of First Nations, Métis, Inuit, and all First Peoples of Canada, whose presence continues to enrich our vibrant community.

The University of Alberta respectfully acknowledges that we are located on Treaty 6 territory, a traditional gathering place for diverse Indigenous peoples including the Cree, Blackfoot, Métis, Nakota Sioux, Iroquois, Dene, Ojibway/ Saulteaux/Anishinaabe, Inuit, and many others whose histories, languages, and cultures continue to influence our vibrant community.

Mission, Philosophy, Transparency & Diversity

Mission

Our mission is to provide exemplary patient and family-centred care for the critically ill today and tomorrow.

Department Philosophy

The Department of Critical Care Medicine provides patient care, supports education and training and facilitates research across the mixed medical/surgical and specialized critical care units in the Edmonton Zone. These critical care units are where the most unstable and seriously ill patients are cared for. Our ICUs consist of highly trained interdisciplinary teams, advanced monitoring capabilities and life-support technology. We have integrated the “ICU without walls” concept, where in addition to having a dedicated location in the hospital, we also have the necessary expertise and support to rescue patients with acute deterioration who are at risk of critical illness and adverse outcomes. As a result, critical care outreach services are now recognized and integrated as a vital component of Critical Care.

Transparency and Diversity

The department is committed to ensuring transparency and social accountability and to facilitate diversity in recruitment, promotion and leadership. The department has been working closely to align with the Faculty of Medicine & Dentistry and Alberta Health Services on these processes.

Message from the Chair/ Department Head



I'm very pleased to present, on behalf of the department, our 2023-2024 Annual Report for the Department of Critical Care Medicine.

Sean M Bagshaw, MD, MSc, FRCPC, FCAHS

Chair and Clinical Department Head, Critical Care Medicine
Faculty of Medicine & Dentistry, College of Health Sciences,
University of Alberta
Alberta Health Services, Edmonton Zone

Enclosed in this year's report are details of the amazing successes, notable challenges and dedication of our department colleagues in delivering our clinical and academic mission. I remain humbled by the outstanding achievements of our department in advancing clinical innovation, quality and safety, education and research.

I'm amazed by the department's commitment to clinical excellence, academic integration and patient- and family-centred care. The achievements of individual units across the Edmonton Zone and the Central Zone are highlighted in this year's report. This year also saw the renewal of our zonal Patient and Family Centred Care Committee, which looks to introduce new strategies to engage patients and families so as to better understand their and the public's experiences as they relate to the importance of critical care to our health-care system.

This year has seen incredible activity in the department's Quality and Safety portfolio, led by Dr. Sandy Widder. We have seen the successful implementation of new zonal and site quality councils promoted by the growing expertise in quality and safety across the zone, aimed to drive new quality initiatives and facilitate zonal and provincial collaboration. The department's Education portfolio continues to grow and set a standard for critical care and sub-specialty and academic training, led by Dr. Adam Romanovsky and the Residency Program Committee. We are fortunate that all three graduates this year from our critical care residency program will be remaining in the zone. We are also welcoming two incoming Clinical Scholars. We continue to see substantial interest in our Critical Care Cardiology and Cardiovascular Surgical Intensive Care fellowships, with three graduates from these programs this year. The department remains highly regarded as an educational experience for learners, again recognized this year by teaching awards external to the department. We have also seen remarkable expansion to the department's Simulation portfolio across multi-level learners, led by Dr. Janek Senaratne, and sustained success in our Critical Care Ultrasound portfolio, including

implementation of ultrasounds standards, hosting the CRUS West Resuscitative Ultrasound course and national research initiative, led by Dr. Brian Buchanan. I'm very proud of our department's dedication to training the next generation of learners.

Despite our department being relatively small, our members continue to generate substantial academic impact. New to this year's report are lab profiles of some of the department's researchers. The Research and Innovation portfolio, led by Dr. Oleksa Rewa, has seen expansion of research activity across the zone, with a focus on department-initiated clinical studies and participation in large, high-impact, national and international collaboratives. Department members have led or contributed to more than 180 publications, many in high-impact journals, along with several new peer-reviewed grants.

We have seen changes this past year. This includes sunsetting of the Critical Care Strategic Clinical Network™ and the introduction of the Critical Care Program Improvement and Integration Network (PIN), as part of AHS's transition towards a Learn Improve Together (LIT) approach. The Critical Care Strategic Clinical Network™ has been an enormous asset for critical care in Alberta. Dr. Wendy Sligl will transition as Senior Medical Lead for the new Critical Care PIN and facilitate provincial initiatives and opportunities moving forward.

The department has also seen the growth of novel scholarly contributions, notably the Critical Care Commute, led by Dr. Leon Byker and Dr. Peter Brindley. Expect to see the Commute reporting from major critical care meetings this year.

Our department continues to strategically grow. We have welcomed several new faculty members in the past academic year, including Dr. Sarah Andersen, Dr. Nori Bradley, Dr. Jocelyn Slemko and Dr. Tom Stelfox, in the inaugural position as Deputy Dean, Faculty of Medicine & Dentistry. We have again this year seen many of our department colleagues taking on new leadership roles, including Dr. Curtis Johnston as Associate Chief Medical Officer for Medical Leadership and Development, Dr. Gabriel Suen as Associate Zone Medical Director, Dr. Mohamad Zibdawi as Zone Clinical Department Head for Cardiac Sciences, Dr. Arabesque Parker as Site Medical Director for the RAH ICU, and Dr. Shelley Duggan as President-Elect, Alberta Medical Association.

Finally, the department is actively embarking on the development of a new Strategic Plan initiative. In the meantime, I look forward to our community leading in high-quality patient and family-focused care, advancing innovative clinical and quality programs, leading in multi-level learner education and engaging on the forefront of basic and clinical research. The coming year will hopefully see progress on the development and implementation of the AMHSP for critical care and continued success in our integrated clinical and academic mission.

I would like to sincerely thank all our department members for their commitment, their dedication, and the scholarly activity focused on advancing critical care.

Sincerely,

Sean M Bagshaw, MD, MSc, FRCPC, FCAHS

Chair and Clinical Department Head, Critical Care Medicine
Faculty of Medicine & Dentistry, College of Health Sciences, University of Alberta
Alberta Health Services, Edmonton Zone

2023-24 DCCM ANNUAL REPORT

CODE OF THE MONTH:

Emergency Response Plan Code Green (Evacuation)

What is Code Green?
Code Green is used when there is a fire or other emergency that requires evacuation of the building.

Emergency Response Plan Code Red (Fire)

What is Code Red?
Code Red is used when there is a fire in a patient room or other area that requires evacuation of the patient.

WHS







INDICATOR	Aug 2024	Sept '24	GOAL	DEFINITION
Avoidable days	7.3%	4.3% ↓	0	Care provided to boarded pts
Discharges	164	126 ↓		# of pts discharge
Median LOS	4.3 days	5.4		how long our pts
Mean APACHE III	70	64		pt acuity meas
1900 to 0700 Discharges	33%	23% ↓	15%	
72 hr re-admit	01	02 ↑	0	re-admission in 72 hrs
Accidental Line /	3 / 1	5 / 1	0	CVC or ETT

CLINICAL UNITS



Clinical Units

KPI Metrics July 1, 2023 to June 30, 2024 (Academic Calendar Year)

UNITS	Edmonton Zone	UAH GSICU	UAH Neuro	MAZ CVICU	RAH ICU	GNH ICU	MIS ICU	SCH ICU	RDRH ICU	GPRH ICU
ADMISSIONS 	7842	1813	573	1550	1478	527	405	333	666	497
AVOIDABLE TIME (%) 	5.85	7.85	6.05	2.2	3.8	8.45	7.5	8.1	7.8	5.85
ICU LOS  (med, days)	3.4	4.2	3.4	2.8	3.6	2.9	3.5	3.0	4.9	2.9
IMV (%) 	68	65	62	93	69	64	45	46	69	37
MORTALITY (%) 	14.9	17.4	15.95	3.8	16.35	20.7	17.5	14.8	23.65	15.7
APACHE III  (score mean)	68.9	71.8	53.4	58.5	71	80.4	72.2	65.7	78.5	49.6

Grey Nuns Community Hospital Intensive Care Unit



ADMISSIONS (N)

527



AVOIDABLE TIME
(% DAYS)

8.45



ICU LOS
(MED, DAYS)

2.9



IMV (%)

64



ICU MORTALITY (%)

20.7



APACHE III
(SCORE MEAN)

80.4



The Grey Nuns Intensive Care Unit (ICU) is a 10-bed, general systems ICU that serves as part of the vascular centre for northern Alberta. This ICU has played an increasing role in the education of residents and fellows, contributing to a robust training ground for future critical care professionals. The unit takes pride in its active participation in research and frequently beats national averages in recruitment into trials. This ICU participates in zonal quality improvement projects, striving to enhance patient care through innovation and best practices.

For the period of July 1, 2023 to June 30, 2024, the ICU admitted 527 patients.

These key performance indicators demonstrate the Grey Nuns ICU's commitment to maintaining high standards of care and its dedication to improving patient outcomes through education, research and quality improvement.

Paula Sharman, RN

Patient Care Manager

Leonard Byker, MD, FRCPC

Medical Director

Clinical Lecturer, Department of Critical Care Medicine

Mazankowski Alberta Heart Institute Cardiovascular Surgical Intensive Care Unit



ADMISSIONS (N)

1550



AVOIDABLE TIME
(% DAYS)

2.2



ICU LOS
(MED, DAYS)

2.8



IMV (%)

93



ICU MORTALITY (%)

3.8



APACHE III
(SCORE MEAN)

58.5



The Cardiovascular Intensive Care Unit (CVICU) at the Mazankowski Alberta Heart Institute is a 25-bed unit renowned for its comprehensive support of advanced adult cardiac surgical programs. These include open-heart surgery, adult congenital heart disease, heart and lung transplants, combined heart/lung and heart/liver transplants, cardiogenic shock, as well as Ventricular Assist Device (VAD) and Extracorporeal Membrane Oxygenation (ECMO) for respiratory and cardiac failure. These programs are among the largest and most advanced in Canada, setting a national benchmark for excellence.

The reach of our programs extends beyond northern Alberta, serving large parts of Western Canada and the Northwest Territories, ensuring that a broad population has access to the highest standards of cardiac care. Our dedicated team is committed to delivering exceptional patient outcomes through innovative treatments and compassionate care.

Mazankowski Alberta Heart Institute Cardiovascular Surgical Intensive Care Unit

The CVICU team consists of eight Royal College-certified specialists with diverse backgrounds, including anesthesia, cardiac surgery, cardiology, emergency medicine and internal medicine. These CV intensivists provide in-house medical coverage 24/7, ensuring continuous, high-level care. They are supported by a team of highly specialized nurse practitioners with extensive experience in cardiac surgical critical care, along with dedicated nursing and allied health staff, and skilled ECMO specialists. Together, they form a cohesive unit that exemplifies excellence in cardiac critical care, working tirelessly to improve patient outcomes and advance the field of cardiac medicine.

Our unit has a strong commitment to training and education. We offer a unique one-year advanced clinical fellowship to qualified Canadian and international trainees focused in cardiac surgical critical care. The fellowship program has successfully graduated six fellows since its inception. The unit also regularly hosts rotating residents and fellows from various programs, enriching their training with electives in the CVICU. Furthermore, we have a dedicated quality assurance council that oversees local quality initiatives, ensuring that we continually improve our practices and maintain the highest standards of care.

Kate Bulbuc, RN

Patient Care Manager

Mohamad Zibdawi, MD, FRCPC

Medical Director

Clinical Assistant Professor, Department of Critical Care Medicine

Misericordia Community Hospital Intensive Care Unit



ADMISSIONS (N)

405



AVOIDABLE TIME (% DAYS)

7.5



ICU LOS (MED, DAYS)

3.5



IMV (%)

45



ICU MORTALITY (%)

17.5



APACHE III (SCORE MEAN)

72.2



Beyond patient care, the Misericordia Community Hospital ICU is active in facilitating research and quality improvement, with participation in several clinical and quality initiatives, including Venting Wisely, Reduction of Sedation and Analgesia (ROSA) and a program to evaluate care and outcomes associated with prolonged mechanical ventilation.

We would like to welcome Dr. Andrea Davenport to the Mis ICU group. We would also like to wish Dr. Mark Heule all the best in his retirement from ICU practice.

As a unit, we are committed to constant improvement in the patient care experience and health-care outcomes, including constant advocacy for improvement in the care environment, adaptation of new technology and incorporation of new expertise, so our patients and their families can have the best possible support during an incredibly trying time!

Anik Pelletier, RN
Patient Care Manager

Erin Taylor, RN
Program Manager

Clint Torok-Both, MD FRCPC
Medical Director
Clinical Associate Professor, Department of Critical Care Medicine

Red Deer Regional Hospital Intensive Care Unit



ADMISSIONS (N)

666



AVOIDABLE TIME
(% DAYS)

7.8



ICU LOS
(MED, DAYS)

4.9



IMV (%)

69



ICU MORTALITY (%)

23.65



APACHE III
(SCORE MEAN)

78.5



The Red Deer Regional Hospital (RDRH) ICU is the only ICU within the AHS Central Zone, which consists of a population of approximately 470,000 and 30 hospital facilities, most located in rural areas. The RDRH has a capacity of 370 beds, with a planned expansion of an additional 200 beds. Our unit provides a full spectrum of critical care services to patients in the zone. It is funded for 20 beds, with a full multidisciplinary team, ICU Access (early intervention), and Code Blue team.

In the past year, we have successfully brought on board quite a few new staff on our team and this process is ongoing. We are continuing participation with provincial quality initiatives, such as Venting Wisely and Dialyzing Wisely. At the same time, we have managed to improve access to some clinical services, such as EEG, for ICU inpatients.

Our goals for the upcoming year include:

- completion of additional beds in an existing shelled-in space adjacent to the current unit
- continuing to integrate new staff onto our team to meet current demands and prepare for the planned hospital expansion
- completing an internal review of potential organ donors
- improving collaboration with our colleagues in rural sites
- continued participation in provincial initiatives supported through the Critical Care PIN, such as Dialyzing Wisely, Don't Misuse My Blood and Venting Wisely

Aimee Pennell, RN

Patient Care Manager

Kelly Longard, RN

Director, Inpatient Medicine, Emergency Services, Patient Access

Luc Benoit, MD, FRCPC

Medical Director

Royal Alexandra Hospital Intensive Care Unit



ADMISSIONS (N)

1478



AVOIDABLE TIME
(% DAYS)

3.8



ICU LOS
(MED, DAYS)

3.6



IMV (%)

69



ICU MORTALITY (%)

16.35



APACHE III
(SCORE MEAN)

71.0



The Royal Alexandra Hospital (RAH) has more than 800 beds and is one of Canada's leading clinical and teaching hospitals, treating patients from across western and northern Canada.

Our 29-bed adult ICU at the RAH admits approximately 1,450 admissions per year including trauma, medical, surgical and obstetrical cases. The ICU is served by 14 fellowship trained intensivists, rotating residents and fellowship trainees, nurse practitioners, patient care manager, four unit managers, clinical nurse specialist, clinical nurse educators, more than 150 registered nurses and 50 allied health-care team members.

This past year, we welcomed 39 newly hired registered nurses into the ICU through the Orientation Program for Adult Critical Care in Alberta (OPACCA). Our adult ICU responds to all Code Blue and Rapid Response Team activations. We participated in eight research studies this year through the RAH Critical Care Research Group.

More importantly, we are strongly focused on a return to important work that had been started pre-pandemic. This included nursing education days, the Patient and Family Centred Care Committee, and our ICU Quality Council. Important projects that we addressed this past year included Reducing the Use of Analgesia and Sedation in the ICU (ROSA), the Behavioral Safety Program, exposure keratopathy in ICU, and three other projects, Venting Wisely, Dialyzing Wisely, and Don't Misuse My Blood. We are preparing for Critical Care accreditation in Fall 2024.

Tove Le Blanc, RN, BScN

Patient Care Manager

Eugene E. Mondor, RN, MN, CNCC(C)

Clinical Nurse Specialist

Arabesque Parker, MD, FRCPC

Medical Director

Assistant Clinical Professor, Department of Critical Care Medicine

Sturgeon Community Hospital Intensive Care Unit/Cardiac Intensive Care Unit



ADMISSIONS (N)

333



AVOIDABLE TIME
(% DAYS)

8.1



ICU LOS
(MED, DAYS)

3.0



IMV (%)

46



ICU MORTALITY (%)

14.8



APACHE III
(SCORE MEAN)

65.7



The Sturgeon Community Hospital is a 169-bed tertiary care centre located in St. Albert just north of Edmonton. The SCH offers a wide range of specialty services including internal medicine, general and orthopedic surgery, obstetrics and gynecology, cardiology, emergency and critical care medicine. The Sturgeon ICU is a nine-bed unit funded for six ventilated-patient beds and three close-observation beds. The day-to-day operations are overseen by the unit manager in conjunction with the on-call intensivist. The SCH critical care program provides advanced ventilatory and hemodynamic support including patient proning and inhaled pulmonary vasodilators, and other critical care therapies such as bronchoscopy and renal replacement therapy. The ICU is staffed by five intensivists, who provide a two-physician weekly model of coverage.

All admissions to the unit are accepted by our intensivist, as this is a closed unit. The SCH is a teaching site, with residents rotating through various services throughout the hospital. The ICU is supported by registered nurses, nurse practitioners, respiratory therapists, pharmacists, resident extenders, unit clerks, physio/occupational therapists and social workers. The ICU has an active multidisciplinary Quality Council and leads SCH site initiatives such as the Code Blue Team and site Resuscitation Rounds.

Sturgeon Community Hospital Intensive Care Unit/Cardiac Intensive Care Unit

This year, the Sturgeon ICU program has launched a Medical Emergency Team. The MET model relies on a combined Critical Care Provider, Nurse and Respiratory Therapist model and responds to any at-risk acutely ill patients throughout the hospital. The ICU program has also initiated a Trans-Esophageal Echocardiography program in partnership with Cardiology for patients both in the unit and throughout the SCH. Finally, in May of this year the intensivist model was changed to a 24/7 call model with intensivists available in-house every night to enable uninterrupted coverage to the Critical Care program.

The Sturgeon ICU participates in Edmonton Zone critical care initiatives. These are supported by a clinical nurse educator. Initiatives include a strong quality improving program participating in programs such as Venting Wisely, Reducing Overuse of Sedation and Analgesia, Don't Misuse My Blood and Dialyzing Wisely. Further, the SCH ICU has opened a stand-alone research office with a dedicated research coordinator and is actively recruiting patients for two studies – QUICC, an observational study validating the EQ-5D-5L quality of life metric in critically ill patients and LIBERATE, a Health Canada-regulated randomized trial evaluating the use of midodrine in critically ill patients.

Glenda Corrigan, RN

Patient Care Manager

Oleksa Rewa, MD, MSc, FRCPC

Medical Director

Associate Professor, Department of Critical Care Medicine

University of Alberta Hospital Peter Allen Neurosciences Intensive Care Unit & Neurosciences Observation Unit



ADMISSIONS (N)

573



AVOIDABLE TIME
(% DAYS)

6.05



ICU LOS
(MED, DAYS)

3.4



IMV (%)

62



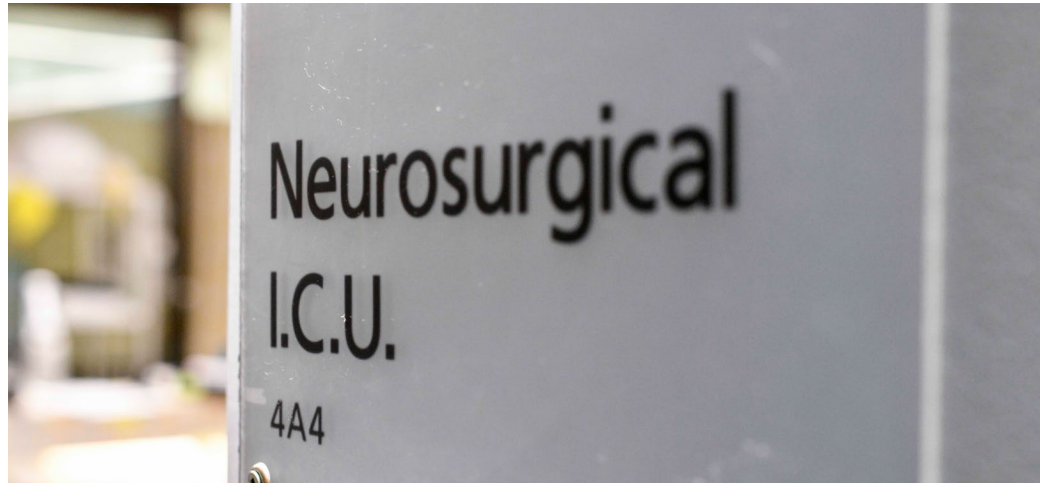
ICU MORTALITY (%)

15.95



APACHE III
(SCORE MEAN)

53.4



The Peter Allan Neurosciences ICU and Neurosciences Observation Unit at the University of Alberta Hospital provides intensive care, high-intensity observation and outreach services to more than 4,000 inpatients annually and supports many key programs for the zone: Neurosurgery, Orthopedics, Trauma, Neuro-interventional Radiology, Stroke and General Neurology. In addition, we provide integral support of the organ donation program within the Edmonton zone.

The 11 ventilated ICU beds and eight high acuity beds cared for 571 admissions in 2023 with an average occupancy of more than 90%. Work is underway for a major expansion of our intensive care bed base to 24 for 2026-27.

Our operations team is led by Kara Penney (executive director), Ruth Santos (patient care manager) and Xerxes Magallanes (unit manager). We are supported by a diverse and experienced interprofessional team. Patients and their family members are cared for by hundreds of talented and highly skilled nurses, respiratory therapists, physiotherapists, dietitians, pharmacists, occupational therapists and chaplains working within our two units.

The Neurosciences ICU and observation unit embrace patients and family members as partners in care, encouraging their presence at the bedside and involvement in care decisions. We have weekly interprofessional rounds to ensure seamless continuity of care along the trajectory of illness for our critically ill patients. We collaborate closely with our physiatry and psychiatry colleagues enhancing rehabilitation for our patients.

University of Alberta Hospital Peter Allen Neurosciences Intensive Care Unit & Neurosciences Observation Unit

Quality improvement, education and research are integral to our units. We are working collaboratively with the Critical Care PIN on multiple improvement projects including Don't Misuse my Blood and Venting Wisely as well as many unit level project such as processes to reduce central line bloodstream infections, care maps for weaning from mechanical ventilation in cervical and high-thoracic cervical spinal cord injury, and roll-out of an oral care bundle.

The Neurosciences ICU and observation unit hosted many learners through the year including undergraduate nursing and medical students, Advanced Critical Care Nursing, Respiratory Therapy and All Health students along with Neurology residents and Critical Care fellows. Our subspecialty services offer unique learning experiences in a collaborative and supportive environment for skill development.

Ruth Santos

Neurosciences Patient Care Manager

Elizabeth Wilcox, MD, FRCPC

Medical Director

Associate Clinical Professor, Department of Critical Care Medicine

University of Alberta Hospital E. Garner King General Systems Intensive Care Unit



ADMISSIONS (N)

1813



AVOIDABLE TIME (% DAYS)

7.85



ICU LOS (MED, DAYS)

4.2



IMV (%)

65



ICU MORTALITY (%)

17.4



APACHE III (SCORE MEAN)

71.8



The EG King General Systems Intensive Care Unit is a 41-bed unit caring for highly specialized patient populations including solid organ transplants, trauma, liver failure and hematologic malignancies. The King is also home to one of only two American Burn Association-accredited burn centres in Canada.

2023 has brought the welcome redevelopment of our Quality committee, led by Dr. Sandy Widder and clinical nurse specialist Matthew Douma. A host of patient safety and human factor initiatives are underway.

Our research office has been extremely busy, and we are proud to have been a part of nine clinical trials in 2023, with 58 patients recruited, and two GSICU initiated trials recruiting across the country.

Patient care starts and ends with people. We are excited to support the hiring and development of two clinical scholars, who will provide clinical care while developing impactful academic portfolios. The King is also proud to announce the retirement of Dr. Meier and Dr. Brisebois, who leave a legacy of 55 years combined clinical excellence, leadership, academic contributions and team development. All the best in your next challenges and adventures, Mike and Ron!

Carmen Boyd, RN
GSICU Patient Care Manager

Dennis Djogovic MD, FRCPC
Medical Director
Clinical Professor, Department of Critical Care Medicine



CLINICAL INNOVATION



Clinical Innovation Edmonton Zone - ICU Survivorship Clinic



Lazar Milovanovic, MD, FRCPC

Medical Director,
ICU Survivorship Clinic

Clinical Lecturer, Department of Critical Care Medicine

Over the past year, the Edmonton ICU Survivorship clinic has continued to expand in size and scope.

The clinic provides assessment and ongoing followup of critical- illness survivors in Edmonton as well as northern and central Alberta. The multidisciplinary clinic currently includes physician and physiotherapist assessment with consultation provided by registered nurses, pharmacists and occupational therapists. Since its inception, more than 50 survivors of critical illness have been assessed.

The clinic is based out of the Misericordia Community Hospital and runs one week per month, seeing approximately 15 to 20 patients and their caregivers. The clinic offers both virtual and in-person assessment and consultation services. It focuses on evaluating and optimizing the long-term outcomes of survivors of long-stay ICU care, acute respiratory distress syndrome (ARDS), post-intensive care acquired weakness and cognitive impairment. Clinic treatment targets include assessment of exercise capacity, cognitive function, quality of life and development of psychiatric symptoms. We have now extended followup for patients over three years from their critical illness.

Post-ICU survivors assessed in clinic are vulnerable (mean clinical frailty scale 3) and only 15 per cent are characterized as frail. They have prolonged ICU stays (mean 10 days), and 82 per cent had symptoms of post-ICU syndrome, primarily in the domains of physical function (91 per cent) as well as psychological symptoms (45 per cent) and cognitive issues (36 per cent).

In addition to the clinical assessment and care of ICU survivors, we are conducting research to evaluate the long-term outcomes of ICU survivors, the development of a standardized referral pathway for patients at hospital discharge and the implementation of a multi-disciplinary team model for the routine assessment of ICU survivors. Insights gleaned from patient outcomes will be used to address current treatment approaches in the intensive care units in Edmonton.

The ICU Survivorship Clinic team includes Dr. Raiyan Chowdhury; Dr. Lazar Milovanovic; Carmel Montgomery, PhD, RN; Lisa Gaglione, BScN, RN; Jennifer Glumpak, BSc, MScPT; Angie Grewal, BScN, RN; and Nancy Hammer, BScN, RN; Kelsey Huber; and Alla Kyriash. For further information regarding the clinic function or referral process, please consult the Alberta Referral Directory.

Informatics and Data Science

It has been over a year since the provincial completion of the Critical Care implementation of Connect Care™. However, implementations in community sites and provincial programs have been ongoing. As this comes to completion this year, leadership is committed to refocusing and improving the system for users.

The KLAS survey made it clear that ongoing education is a critical component to user satisfaction. The Critical Care training team is working with the Chief Medical Informatics Officer (CMIO) to develop a new series of courses called Thrive, to give clinicians refresher training and efficiency tips. AHS and Epic are also making other training material available for independent learning.

This year has also seen a change in the organization at AHS. The SCN and area councils are being reorganized to better align themselves to meet the needs of the end-users. These new “PINs” are structured to simplify the organization and the area council under them will place a greater focus on improving the user experience.

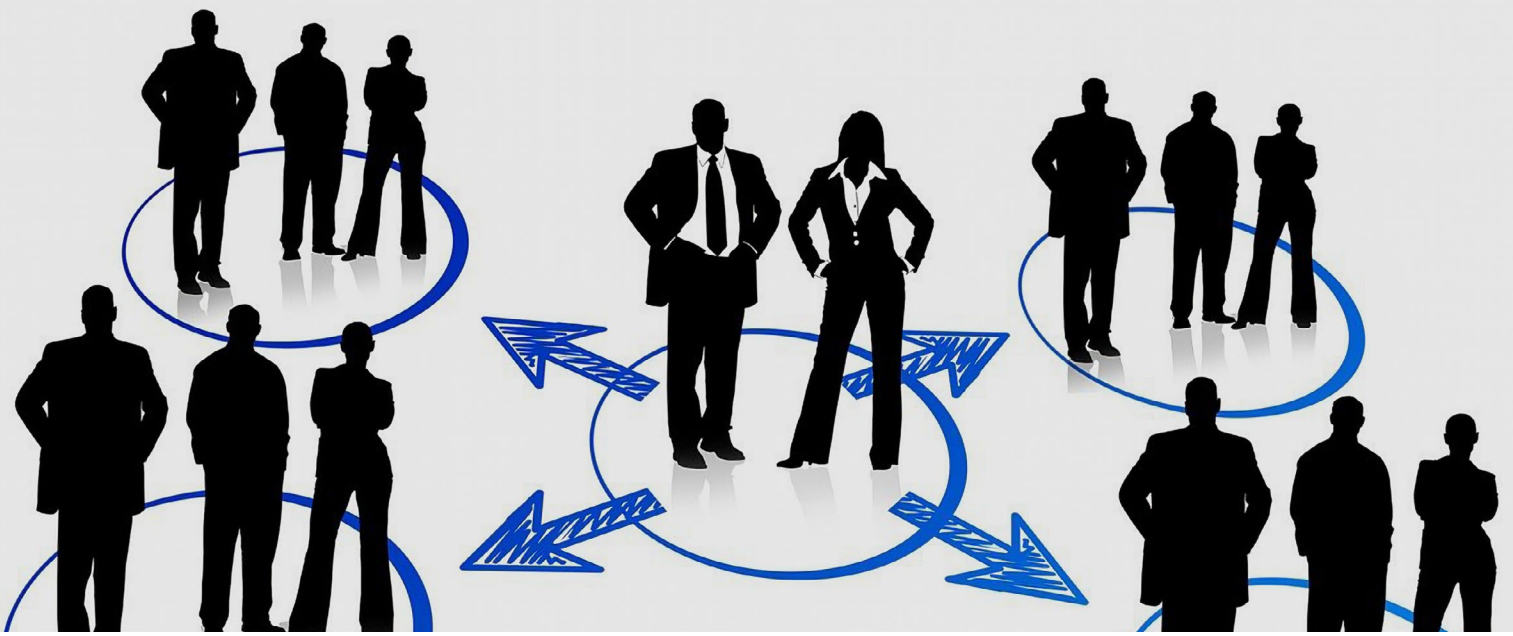
The work at eCritical Alberta has remained focused on data quality, analytics and optimization. We continue to support all of the provincial quality improvement and research initiatives such as Venting Wisely, Dialyzing Wisely and ROSA, in addition to individual research projects and quality improvement initiatives.



Ella Rokosh, MD, FRCPC
Medical Lead, Connect Care™
Clinical Associate Professor,
Department of Critical Care Medicine



Darren Hudson, MD, FRCPC
Physician Master Builder, Connect Care
Medical Director, eCritical Alberta
Clinical Assistant Professor,
Department of Critical Care Medicine



PARTNERSHIPS



Partnerships



Critical Care Strategic Clinical Network™ Report

The Critical Care Strategic Clinical Network™ (CC SCN) is a community of health care professionals, operational and medical leaders, patients and families, researchers, data analysts, policy makers and other stakeholders from Alberta's adult, cardiovascular, neurosciences and pediatric critical care units.

The Network addresses challenges in critical care medicine, drives improvement, and embeds evidence into daily practice to improve health outcomes and health service delivery for all Albertans.

Scientific Office of the Critical Care Strategic Clinical Network

The Scientific Office of the Critical Care Strategic Clinical Network was created to lead Alberta Health Services (AHS) in the promotion, adoption and diffusion of evidence-based innovation to drive decision-making in critical care medicine. As researchers and innovators, we lead research and partner with patients and their families, students, researchers and organizations in order to improve the health of Albertans through the development, execution, and implementation of research.

The Network has a number of priority areas/projects, focusing on strengthening collaboration, improving quality care and best practices, and transforming the health system through evidence and innovation.

HEALTH IMPACTS



Venting Wisely

Many critical care patients require mechanical ventilation for hypoxemic respiratory failure and Acute Respiratory Distress Syndrome (ARDS). These conditions are associated with particularly high risk of death and prolonged need for ICU care. Evidence-based, life-saving therapies exist for mechanically ventilated ARDS patients – including lung protective ventilation and prone positioning – but these therapies are variably applied.

The innovative, evidence-informed Venting Wisely (VW) care pathway was developed by a multi-disciplinary group of clinicians across Alberta to reduce practice variation and improve adherence to evidence-based practices. The pathway improves diagnosis and reduces evidence to care gaps by emphasizing optimal and appropriate use of lifesaving therapies, while de-emphasizing less effective, costly treatments.

The 2023-2024 fiscal year marked the completion of implementation of the Venting Wisely care pathway for all 17 adult intensive care units in Alberta.

Evaluations performed of the Venting Wisely care pathway indicate that:

- **Compliance to the 5 steps of the pathway is over 80%.**
- **Use of therapies including lung protective ventilation, neuromuscular blockade, and prone positioning are more consistent across Alberta following implementation of the VW care pathway.**
- **When surveyed, 94% of responding clinicians indicate that the VW pathway is acceptable or completely acceptable.**



Dialyzing Wisely

Acute dialysis therapy is one of the most expensive and resource-intensive interventions provided in the ICU. Almost 10% of ICU patients require this therapy, but no standardized mechanism exists to monitor and report the performance of acute dialysis in Alberta. The Dialyzing Wisely (DW) program was developed to implement a dialysis initiation care pathway and execute, monitor and report a series of key performance indicators to transform the quality of therapy across Alberta's ICUs. It is anticipated that the DW program will decrease the incidence of dialysis initiations, translating into decreased chronic dialysis dependence, improved patient outcomes and quality of life, and health systems savings.

The evidence-based and stakeholder-informed DW program aims to standardize acute dialysis therapy in Alberta's ICUs, engaging all health professionals that provide or deliver any aspect of dialysis therapy.

Between April 1, 2023 and March 31 2024, the DW program was implemented by clinical teams in 17 adult and pediatric ICUs across the province. Initial data demonstrates:

- **Provincial adherence to evidence-based acute dialysis initiation criteria has improved from 40% to 52%.**
- **Overall days of continuous dialysis have decreased from 4,700 days/year to 3,373 days/year in Alberta's ICUs.**
- **Estimated cost avoidance attributable to the Dialyzing Wisely program in the 2023-2024 fiscal year was approximately \$1.3 million.**



Don't Misuse my Blood (DMMB)

Patients admitted to critical care and high-risk surgical units are frequently prescribed blood and blood component transfusions. Canadian and international guidelines exist to indicate when a blood component transfusion is appropriate; however, despite such guidance, there remains a significant gap between actual and avoidable blood use. In Alberta, data suggests that up to 60% of these transfusions might be avoidable. When indicated, blood transfusions are lifesaving, but are associated with risk to patients and substantial healthcare costs. In critical care units and high-risk surgical units combined, avoidable blood transfusions amount to \$20.5 million in costs to the health care system, and significantly impact Canadian blood shortages.

Building on earlier success of the RATIONALE initiative, which reduced the use of low-value albumin, the Don't Misuse my Blood (DMMB) initiative was established. Clinical Decision Support Tools (CDST) were developed to indicate appropriate blood use through review and distillation of hundreds of guidelines, specialty society statements, randomized controlled trials, and stakeholder consensus. In the last fiscal year, the DMMB initiative has been implemented by teams in 27 units across 5 zones, including adult ICUs, pediatric ICUs, coronary care units, cardiovascular ICUs, and high-risk surgical units. To support implementation, the CC SCN provided in person and virtual in-services to clinical providers, developed quick reference tools and educational resources, and collaborated with Transfusion Medicine to integrate the CDSTs into the Transfusion Medicine monographs.

Evaluations of the DMMB initiative in 2023-2024 show that:

- **Low value red blood cell transfusions have decreased by 29% in ICUs that have implemented the DMMB initiative. In the same units, low value plasma transfusions have decreased by 23%, and low value platelets have decreased by 28%.**
- **Owing to the sustainment of the RATIONALE project, the use of low value albumin has remained over 30% lower than baseline with over \$1.2 million saved**

INDIGENOUS PEOPLES AND CRITICAL CARE PROGRAM OF WORK

Alberta Health Services (AHS), the Critical Care SCN (CC SCN) and the Indigenous Wellness Core (IWC) are 3 years into their partnership, with the goal of building relationships and trust with Indigenous Peoples, closing knowledge gaps in ICU care, and reducing health inequities experienced by Indigenous Peoples. The Indigenous Peoples and Critical Care Advisory Group (IPCCAC), which includes four Indigenous members representing Cree, Anishinaabe, and Metis First Nations alongside the scientific offices of the IWC and CC SCN, guides and co-designs this large program of work.

Over the past fiscal year, a systematic review and meta-analysis on the incidence and outcomes of critical illness in Indigenous Peoples was published (<https://ccforum.biomedcentral.com/articles/10.1186/s13054-023-04570-y>).

An environmental scan of Indigenous resources and culturally specific tools across ICUs in Alberta was completed to identify gaps and build a forward-looking foundation for organizational learning to lead culturally safe change for Indigenous Peoples. The findings of the environmental scan found there are limited ICU-specific resources to support Indigenous patients and their families. Additionally, we developed a partnership with the Metis Nation of Alberta (MNA), with the objective of performing the first population-based, retrospective cohort study on the incidence of critical illness and associated ICU care experiences among the Metis population in Alberta.

Our collaboration thus far shows:

- **There is a narrow and incomplete understanding of Indigenous Peoples risk of critical illness and their experiences with critical care.**
- **The scope and magnitude of health inequities in access to ICU support and outcomes after critical illness remains poorly described and represents a barrier to action.**
- **This program of work will help close knowledge gaps in ICU care needs of Indigenous Peoples.**
- **Direct impacts of this work include advancing knowledge as well as health care provider and decision maker understanding of Indigenous Peoples' experiences with critical care in Alberta.**

TRAINEES

Anti-Indigenous Bias Among ICU Healthcare Professionals

Dr. Sadie Deschenes, New Investigator Seed Grant Awardee
University of Alberta, Faculty of Nursing

Calls to Action recommendations for Health from the Truth and Reconciliation Commission of Canada (TRC) include holding health systems accountable to make Indigenous-specific improvements. Providing culturally safe and equitable services is essential in improving and ensuring positive healthcare experiences for Indigenous patients. A foundational step toward providing culturally safe healthcare is to identify the prevalence of anti-Indigenous bias among our intensive care unit (ICU) healthcare workforce.

Patients from marginalized groups, including Indigenous Peoples, have worse outcomes in the healthcare system. The contributions of interpersonal and systemic racism to these experiences are not known. Dr. Deschenes' research will survey a broad spectrum of ICU healthcare professionals in Alberta to describe the prevalence and magnitude of implicit and explicit anti-Indigenous bias.

Dr. Deschenes' research directly aligns with the strategic priorities laid out in the CC SCN™ Transformational Roadmap. A key priority of the CC SCN™ is to improve healthcare delivery by ensuring evidence-based, quality care for critically ill or injured people in Alberta. This work is a key step to co-develop strategies that will foster equitable, safe, and high-quality critical care among Indigenous patients, their families and communities across Alberta.

Impact: This work is urgently needed to describe ICU healthcare professionals' attitudes, perceptions and experiences when working with Indigenous patients. Given the large population of Indigenous Peoples in Alberta, this project will contribute key knowledge that may inform progressive and positive change in the critical care experienced by Indigenous Peoples. This knowledge will be foundational and actionable for the co-design of strategies to foster culturally safe, equitable, and high-quality critical care for Indigenous patients, families, and communities.

Development of an Early Warning System for Excessive Workload for Physician Staffing and Well-Being in ICUs – A Pilot Study

Dr. Chel Hee Lee, New Investigator Seed Grant Awardee
University of Calgary, Department of Critical Care Medicine

The prevalence of physician burnout is high in the critical care environment. Depression, post-traumatic stress disorder, lower job productivity, and higher intent to leave other than retirement are commonly reported. Burnout can also impact patient safety due to increased medical errors and reduced patient care efficiency. Reported contributing factors include high workload, impaired interpersonal relationships, and a poor work-life balance.

The objective of Dr. Lee's research is to develop an Artificial Intelligence (AI)-powered early warning algorithm that will identify physicians with excess workload compared to others, and inform ICU leadership to assist in modifying call scheduling to reduce the risk of physician work-related burdens. Addressing moral distress and burnout of ICU physicians is a key priority area for the CC SCN™. This innovative study aims to improve patient- and family-centered care by improving the quality of care from an ICU physician and will lead to quality improvement by applying AI tools.

Impact: Dr. Lee's research will enable identification of work-related risk factors in the Alberta ICU environment and create an opportunity to adjust them to reduce the amount and level of work stress. The anticipated impact of the proposed research is that it will improve a physician's quality of care, thus, ultimately leading to improved patient- and family-centered care. Additionally, the study will potentially impact the future scheduling of ICU physician work, thereby improving work-life balance, physical and mental health, and job satisfaction.

RESEARCH COLLABORATIONS

Midodrine for the Early Liberation from Vasopressor Support in the Intensive Care Unit – The Liberate Study

Dr. Oleksa Rewa

Department of Critical Care Medicine, University of Alberta

Hypotension and shock are primary indications for ICU admission. While there are practice guidelines for the initial management of these conditions, there exist no guidelines on the weaning from vasopressor therapies, which presents a significant knowledge gap. The LIBERATE study will address this knowledge gap with high-quality evidence and determine the efficacy and safety of midodrine in facilitating earlier liberation of vasopressor therapy in critically ill patients with shock.

The LIBERATE trial is a multinational, multicenter, randomized controlled trial (RCT), that includes hospitals from across Canada. The hypothesis is that midodrine will decrease ICU length of stay in patients with vasopressor-dependent shock. The LIBERATE trial is currently enrolling participants with any form of shock across medical, surgical, medical/surgical, trauma, neuro and cardiovascular ICUs in both academic and community settings. In the 2023-2024 fiscal year, the LIBERATE trial enrolled 120 patients from 11 centres, with another 9 centres in Canada being planned for early 2025. An additional 5 centres are planned to enter into the study from Brazil in late 2025. The study is expected to reach its target recruitment of 1,000 patients by the end of 2026.

In the current environment of strained healthcare funding, limited ICU capacity and pressure on ICU resources, the ability to safely wean patients from vasopressors may improve how patients navigate through the healthcare system and may achieve costs savings and resource reallocation. LIBERATE has also been designed to be readily generalizable and applicable to any ICU. This will ensure that the study may be implemented in any ICU, specifically in those not traditionally participating in research (i.e. community hospitals) due to lack of dedicated clinical research resources. This will work to build the research infrastructure and capacity for critical care research across Canada, while also addressing the important research question regarding the use of midodrine to decrease ICU length of stay.

Impact: LIBERATE addresses an important knowledge gap and aims to determine if earlier vasopressor liberation due to midodrine therapy reduces the patient-centered and healthcare system based primary outcome of ICU length of stay for critically ill patients. If realized, this may lead to substantial cost-savings and resource allocation in a climate of strained healthcare funding. LIBERATE has been designed to be readily spread and scaled to any ICU. The ultimate impact is the goal to improve patient care and increase staff satisfaction.

ICU Discharge Delay and Capacity Strain in Alberta ICUs

A collaboration between the Critical Care SCN, Alberta Health Research and Innovation, and the Institute of Health Economics

ICU discharge delay and capacity strain was identified as a growing concern by Alberta's critical care operational leaders in 2023-2024. Intensive care unit (ICU) discharge delay occurs when a patient is considered ready to be discharged but remains in the ICU, also known as ICU avoidable time. These delays in transfer of discharge-ready patients from ICU are increasingly described and contribute to strained ICU capacity. The impacts of ICU avoidable time are numerous and well-documented, and are associated with increased patient adverse events and higher healthcare costs. Therefore, the CCSCN commenced a body of work to outline the current state of capacity strain in the Alberta ICUs, review and summarize existing literature pertaining to discharge delay, and explore a novel approach of predicting critical care demand by leveraging machine learning capabilities.

Collaboration with the Alberta eCritical team provided operational leaders with unit-specific data pertaining to overall ICU capacity, the proportion of patients experiencing discharge delays, the amount of avoidable time, and the accepting inpatient units and services experiencing the highest demand. The CCSCN Scientific Office completed a literature review, summarizing peer-reviewed evidence outlining the impacts of an increase in ICU avoidable time, delayed discharge from ICU, or strained ICU capacity and their association with patient outcomes and health care costs. Additionally, the CC SCN embarked on a Health Evidence Review on optimization of patient flow through ICUs and into inpatient units with Alberta Health's Research and Innovation Branch. The objectives of this Health Evidence Review are:

- To identify strategies addressing patient flow from ICU to inpatient ward which have been developed/implemented in comparable jurisdictions;
- To assess clinical- and cost-effectiveness of identified strategies addressing patient flow out of ICU in terms of patient outcome, ICU length of stay, delayed ICU discharge, and ICU readmission;
- To identify optimal ICU patient flow strategies regarding their impact on ICU operation, system costs, patient outcomes, cost-effectiveness, and the allocation of health system resources.

Impact: The CCSCN has partnered with the AHS Health Evidence and Innovation Department to investigate if ICU capacity can be predicted and subsequently mitigated. Leveraging data available through Connect Care, an ICU capacity strain alert would use predictive modelling to forecast critical care demand. Such a decision support tool would enable operations leaders throughout the acute care system to proactively plan for and manage periods of anticipated strain. This program of work remains in progress, with expected completion in 2025.

PATIENT AND FAMILY ADVISORS

Patient and Family advisors are integral to the work of the Critical Care SCN. Key contributions over the past year include involvement in the network core committee, identification of critical care priority areas of focus, and development of a Patient and Family Dialysis Journey Map.

As identified by the Patient and Family Advisors involved in the Dialyzing Wisely (DW) project, the ICU experience can be overwhelming. In collaboration with the DW project team and Patient and Family Advisors, the Patient Journey Map was developed as a resource for patients and families in ICU who are experiencing acute dialysis. It outlines patient flow and experience during a typical encounter with kidney dialysis in the ICU. The Patient Journey Map allows patients and their families to better understand common steps in their dialysis encounter and what they can expect next.

WHAT'S NEXT? LEARN IMPROVE TOGETHER

As part of AHS' refinement as a Learning Health System, a new Learn Improve Together (LIT) approach is being implemented to bring quality closer to the bedside, with the goal of delivering better care for patients and improving their health outcomes in a fiscally responsible way. This initiative will replace the Strategic Clinical Networks in the next fiscal year in the form of Program Improvement and Integration Networks (PINs). PINs will be focused on a more manageable set of priorities that will create the space to deliver on what matters to clinicians and patients while empowering clinical teams to own the change. As part of this process, the PINs will renew organizational priorities, use resources in the most effective way and support operational sustainability.

Critical Care was named one of the acute care PINs and will be transitioning from SCN to PIN in the coming fiscal year.

GRANTS

TOPIC	PI AND AFFILIATION	SD/ASD ROLE	PROJECT	FUNDING AGENCY/ COMPETITION	AMOUNT	FUNDING PERIOD
Critical care; Clinical appropriateness; Health outcomes	Dr. Sean Bagshaw (SD; UA)	Supporting (Wendy Sligl , SMD UA; Sherri Kashuba , SPD; Samantha Bowker , ASD UA)	Albumin to Enhance Recovery After Acute Kidney Injury (ALTER-AKI)	CIHR Project Grant	\$956,249	2024-2027
Indigenous Peoples; Critical care; Health system transformation	Dr. Sadie Deschenes, UA	Co-Investigator (Dr. Sean Bagshaw , SD UA) Supporting (Wendy Sligl , SMD UA; Sherri Kashuba , SPD; Samantha Bowker , ASD UA)	Anti-Indigenous Bias Among ICU Healthcare Professionals	CC SCN New Investigator Seed Grant	\$15,000	2024-2025

Partnerships



Canadian Critical Care Trials Group (CCCTG)

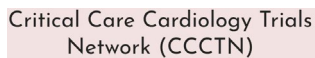
Canadian Critical Care Translational Biology Group (CCCTBG)

Several members of the department engage and actively participate in CCCTG/CCCTBG activities. This partnership is also enabling research infrastructure to facilitate community hospital contributions to critical care research in the Edmonton Zone.



Canadian Vigour Centre (CVC)

Dr. Sean van Diepen serves as a faculty member.



Cardiac Critical Care Trials Network

Dr. Sean van Diepen serves on the executive committee.



LOGIC – Linking of Global Intensive Care

Dr. Darren Hudson is the Medical Director of eCritical Alberta.



Canadian Sepsis Research Network

Dr. Kim Macala continues to play a leadership role in the Canadian Sepsis Research Network, in partnership with the CCCTBG.

AWARDS AND RECOGNITION



Awards and Recognition

2023-24 Internal Awards



Mentor of the Year **Dr. Curtis Johnston**

This award honors physician members within DCCM who have shown an outstanding commitment to mentoring, developing, and supporting DCCM educational or research trainees, junior faculty, or staff (AHS or FoMD).



Best Paper of the Year

This award honors physician members within DCCM for any published peer-reviewed paper (or accepted in press) by a member of the department (faculty must be first or last author; or trainee led paper) within the last academic calendar year (July 1, 2023 to June 30, 2024).

Dr. Rachel Khadaroo - **Water-Based and Waterless Surgical Scrub Techniques**



Best Paper of the Year

This award honors physician members within DCCM for any published peer-reviewed paper (or accepted in press) by a member of the department (faculty must be first or last author; or trainee led paper) within the last academic calendar year (July 1, 2023 to June 30, 2024).

Dr. Fernando Zampieri - **Balanced crystalloids versus saline for critically ill patients (BEST-Living): a systematic review and individual patient data meta-analysis**



Teacher of Year (Junior) Resident Award - Dr. Kimberly Macala

This is an annual award recognizing a physician who has demonstrated commitment to high quality education for our rotating residents. The recipient of this award is chosen by junior residents rotating through the ICUs at UAH and RAH.



Teacher of Year (Senior) Resident Award - Dr. Janek Senaratne

This is an annual award recognizing a physician who has demonstrated commitment to high quality education for our senior critical care residents. The recipient of this award is chosen by our CCM trainees.



Dr. Dan Stollery Award for Clinical Excellence in Critical Care Medicine - Dr. Gurmeet Singh

This award is designed to acknowledge and recognize a Physician within DCCM whose exceptional contributions to clinical practice and commitment to excellence in critical care medicine goes above and beyond the norm.



Dr. Richard Johnston Award for Distinguished Service to Critical Care Medicine - Dr. Michael Meier and Dr. Ronald Brisebois

This award recognizes and acknowledges a physician whose vision, commitment and contributions have furthered the practice, organization, scholarship, and field of critical care medicine over the lifespan of their career.



Humanitarian Award in Critical Care Medicine - Ms. Lindsay Ames

This award recognizes and acknowledges an individual who has made outstanding contributions to leadership, service and/or scholarship directed to advance the field, practice, and organization of critical care regionally, provincially, nationally, or internationally.

Awards and Recognition

2023-24 External Awards



Dr. Brian Buchanan

David Cook Award in Medical Education

The David Cook award is presented annually to a faculty member (or a group of members) of the Faculty of Medicine & Dentistry who has successfully planned and implemented a significant curricular innovation.



Dr. Curtis Johnston

Chris Carruthers Excellence in Medical Leadership award for 2024

The Award shall be presented to a physician who has made an outstanding contribution to the development and mentorship of medical leaders in the field of health services leadership and management.

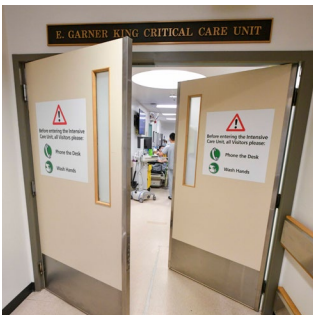


Dr. Constantine Karvellas
**2024 Canadian Association for the Study of Liver/
 Canadian Liver Foundation Visiting Professorship Awardee**

In recognition of being “an outstanding individual in hepatology, an excellent communicator, and with an interest in clinical, basic science or translational liver research.” Awarded \$10K to give ‘State of the Art’ lectures in Acute/Acute-on-chronic liver failure at Liver Transplant centres across Canada.



Dr. Janek Senaratne
Division of Cardiology Mentor of the Year Award



**University of Alberta Hospital-
 E. Garner King General Systems Intensive Care Unit**

Best off service rotation of the year

Awarded by Family Emergency Medicine Program.

Awards and Recognition

Dr. Wu Dat Nin Chin Scholarship in Critical Care Medicine



This scholarship aims to honor the legacy and the substantial contributions Dr. Wu Dat Nin Chin has made to education, research, and service in critical care medicine at the University of Alberta and in the Edmonton Zone; as well as his leadership in the development and recognition of the discipline of Critical Care Medicine in Canada.

Youri Kim, UME, UofA

Research Project: "Examining Referral Patterns: Palliative Care in Advanced Cirrhosis - Insights from Global Liver Transplant Centres".

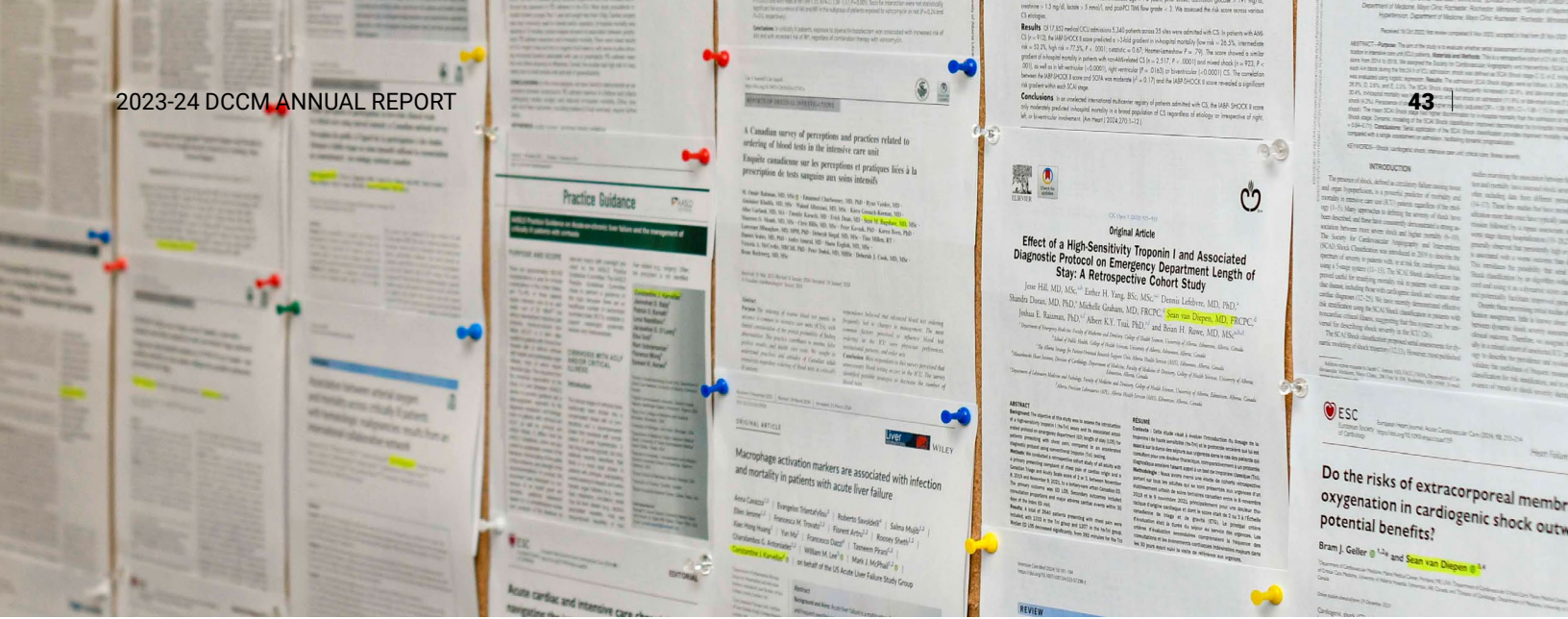
Supervisor: Dr. Sarah Andersen

Athina Alight, UME, UofA

Research Project: "Investigation of Circadian Rhythms and Environmental Lighting

Influences in Subarachnoid Haemorrhage (SAH) Management: Towards Real-Time Patient Monitoring and Intervention Optimization".

Supervisor: Dr. Elizabeth Wilcox



RESEARCH AND INNOVATION



Message from the Director

The 2023-2024 academic year was a productive year for our department. Members continued to participate in and produce high-impact research, lead scholarly activities, and secure new external research funding.



Dr. Oleksa Rewa
 Director, Research and Innovation
 Associate Professor, Department of Critical Care Medicine

Further, members again participated in regional, national and international conferences as both invited faculty and attendees. The department has been successful in several

large-scale provincial and national funding opportunities, and its members have continued to publish manuscripts in high-impact journals. These successes will be highlighted in this year's Annual Report.

In addition to the successes of our current members, we have been successful in strategically recruiting two new faculty to further build our academic mission. Dr. Jocelyn Slemko is an early-career investigator whose interests focus on ICU adverse events, human factors, simulation and a systems approach to patient safety. Dr. Slemko works at the E. Garner King GSICU at the University of Alberta Hospital and the Sturgeon Community Hospital ICU. She is also the research director for the Sturgeon Community Hospital ICU, and the medical lead for the soon-to-be-opened Sturgeon Hospital Foundation Simulation Centre. Dr. Sarah Andersen is an early-career investigator whose focus is on ethical decision-making and patient and family-centred care. She recently completed an NIH-funded postdoctoral fellowship in health services research and a bioethics fellowship through the Harvard Centre for Bioethics. Dr. Andersen works between the E. Garner King GSICU at the UAH and the Misericordia Community Hospital ICU. She also holds adjunct appointments at the John Dossetor Health Ethics Centre and the University of Pittsburgh School of Medicine.

The department accepted two intensivists into its Clinical Scholar Program. Dr. Michal Chwalek is an internist and intensivist having successfully completed his critical care residency in 2024 at the University of Alberta. His academic focus is on medical education and the curriculum development for mechanical ventilation. Dr. Anton Nikouline is an emergency medicine physician and intensivist who successfully completed his critical care residency in 2024 at Western University. He has a certificate in Artificial Intelligence in Health Care and is completing a master of science in quality improvement and patient safety. He aims to focus his academic development on machine learning in critical care and develop models to predict patient outcomes and provide clinical decision support. We look forward to supporting these two early-career physicians as they embark on their academic and research programs.

Research Day



Finally, we have again held a combined Pediatric and Adult Critical Care Medicine Research Day on May 15th. The Research Day was held as a hybrid event, with both virtual and in-person presentations. It was a great opportunity for our trainees to present their work, and hear from a leading community researcher, Dr. Jennifer Tsang, about her experiences leading a successful research program in St. Catherines, Ontario, and building the Community ICU Research Network across Canada. The event was attended by over 50 trainees and Faculty across the two Departments.

In the Research Competition, Andrea Shysh (supervisor Dr. Sean van Diepen) won first prize for her work on, 'Psychoactive Medication Use After COVID-19 ICU Admission.'

Second prize went to Jennie Vue (supervisor Dr. Stephane Bourque) for her work on, 'Elamipretide as a Potential Therapeutic for Sepsis Induced Cardiac Dysfunction.' Third prize was won by Jeffery Ye (supervisor Dr. Sean van Diepen) for his work on, 'Validation of Emergency Medical Services Administrative Codes to Identify Out-of-Hospital Cardiac Arrest.'

We thank Dr. Jocelyn Slemko and Dr. Sarah Andersen for serving as our guest judges. This was a fantastic collaboration between the two Departments where the multidisciplinary nature of our trainees' research was highlighted, and we look forward to the 2025 Critical Care Medicine Research Day on May 14th 2025.

Researcher Profiles



Dr. Sarah Andersen

Dr. Sarah Andersen started on faculty as an Assistant Professor in the Department of Critical Care Medicine at the University of Alberta in September 2023, after completing her postgraduate training and an NIH-funded research fellowship at the University of Pittsburgh. Her research focuses on ethics, decision-making, and enhancing patient and family-centered care along the critical care continuum. She was recently appointed as an adjunct faculty member in the John Dossetor Health Ethics Center and remains an adjunct faculty member at the University of Pittsburgh.

Trainee Updates:

- [Youri Kim](#) (Undergraduate medical education) – was awarded the Dat Chin Scholarship in Critical Care Medicine for a supervised research project on international approaches to palliative care and life support use in acute on chronic liver failure.

Select Study Highlights:

- [Physician decision making in chronic critical illness](#) – is a multicenter qualitative study described processes by which physicians facilitate goals-of-care decisions for patients with chronic critical illness in the ICU. Preliminary results were selected for a poster discussion session at ATS and published in CHEST ([Achieving Goals of Care Decisions in Chronic Critical Illness: A Multi-Institutional Qualitative Study - PubMed \(nih.gov\)](#)). Dr. Andersen was interviewed about this project for the Medical Ethics Advisor magazine and CHEST Journal Podcast.

Select Collaboration Highlights:

- [Anti-Indigenous Bias Among ICU Healthcare Professionals](#) - (with Dr. Sadie Deschenes; Faculty of Nursing): This study was selected for an AHS Critical Care Strategic Clinical Network seed grant (\$15,000) to extend prior provincial work on anti-indigenous bias in healthcare.

Select Publication Highlights:

- **Andersen SK**, Herridge M, Fiest K. Recovery From Sepsis: Management Beyond Acute Care. *Seminars in Respiratory and Critical Care Medicine*. Jul 5 2024;(Epub) doi:10.1055/s-0044-1787993
- **Andersen SK**, Chang C, Arnold RM, Pidro C, Darby J, Angus DC, White DB. Impact of a Family Support Intervention on Hospitalization Costs and Hospital Readmissions Among ICU Patients at High Risk of Death or Severe Functional Impairment. *Annals of Intensive Care*. Jul 2 2024;14(1):103. doi:10.1186/s13613-024-01344-9
- **Andersen SK**, Yang Y, Kross EK, Haas B, Hart J, Bagshaw SM, Dzung E, Fischhoff B, White DB. Achieving Goals of Care Decisions in Chronic Critical Illness: A Multi-Institutional Qualitative Study. *CHEST*. 2024. DOI: 10.1016/j.chest.2024.02.015.
- **Andersen SK**, Gamble N, Rewa O. COVID-19 critical care triage across Canada: A narrative synthesis and comparative ethical analysis of early provincial triage documents. *Canadian Journal of Anesthesia*. 2024. doi:10.1007/s12630-024-02744-y
- Munan M, Cheema H, Scherr K, Solverson K, **Andersen SK**, Macintyre E. Best Practice in Prolonged Mechanical Ventilation: A Qualitative Study of Healthcare Provider Perspectives. *Canadian Journal of Critical Care Nursing*. 2024;34(3):15-24. DOI: 10.5737/23688653-34415

Notable Achievements

- Participated as an invited early career researcher at the Greater Recovery in Critical Illness (GRACE) roundtable in Cambridge, U.K.
- Member of the American Thoracic Society Aging Interest Group



Dr. Sean Bagshaw

The Bagshaw Lab focuses on clinical epidemiology, clinical trials, health services research and public health related to critical care nephrology, vulnerable populations (e.g., elderly, frail), and ICU organization and capacity.

Dr. Bagshaw is Professor and Chair of the Department of Critical Care Medicine, Faculty of Medicine and Dentistry, University of Alberta and Zone Clinical Department Head for Critical Care Medicine, Edmonton Zone, Alberta Health Services, in Edmonton, Canada. Dr. Bagshaw is supported by a *Canada Research Chair in Critical Care Outcomes and Systems Evaluation*. He recently completed a 6-year term as Scientific Director of the Critical Care Strategic Clinical Network™, AHS.

Trainee Updates:

- [Ashley Turner](#) (Undergraduate Medical Education) – awarded the Dr. Wu Dat Nin Chin Scholarship in Critical Care Medicine for her environmental scan of resources for Indigenous Peoples in critical care settings in Alberta. She presented her preliminary results at the 2023 CCCF (presentation) and 2024 ASICP/CCSCN Research Symposium.
- [Dr. Josh Burcher](#) (Postgraduate Medical Education/Critical Care Medicine Resident) – awarded a CCCTG/NoN Grant for his project to investigate the epidemiology of critical illness among Metis People in Alberta.
- [Dr. Zahraa Habeeb](#) (Postgraduate Medical Education/Critical Care Medicine Resident) – presented a secondary sex-aggregated analysis from the STARRT-AKI trial at the 2024 AKI & CRRT Conference (San Diego).
- [Dr. Heather Perry](#) ((Postgraduate Medical Education/Critical Care Medicine Resident) – has developed and will evaluate a novel training progress for critical care trainees (and early career clinicians) for clinical trialist training and certification.
- [Dr. Jaye Platnich](#) (Postgraduate Medical Education/Nephrology Resident) – published a bibliometric analysis of the highest impact articles in critical care nephrology (Platnich J et al. *Blood Purif* 2024;53(4):243 - **A Systematic Bibliometric Analysis of High-Impact Articles in Critical Care Nephrology - PubMed (nih.gov)**).
- [Dr. Sadie Deschenes](#) (Post-Doctoral Fellow) - completed post-doctoral fellowship embedded in the health system and partnered between the Department of Critical Care Medicine (UAlberta) and the Critical Care Strategic Clinical Network™. Funding support from a grant from MITACS. Started a new position as Assistant Professor, Faculty of Nursing. Dr. Deschenes was also awarded a seed grant from the Critical Care Strategic Clinical Network™ to explore anti-Indigenous bias among critical care health care professional in Alberta.
- [Dr. Rachel Jeong](#) (Postgraduate Medical Education/Critical Care Medicine Resident) – published a cohort study focused on long-term follow-up of survivors of critical ill complicated by AKI (**Follow-up Care of Critically Ill Patients With Acute Kidney Injury: A Cohort Study - PubMed (nih.gov)**).
- [Dr. Emma Ulrich](#) (early career Pediatric Nephrologist/graduate student) – published a systematic review focused on prophylactic PD catheter insertion in children undergoing cardiac surgery (**Outcomes of Prophylactic Peritoneal Dialysis Catheter Insertion in Children Undergoing Cardiac Surgery: A Systematic Review and Meta-Analysis - PubMed (nih.gov)**).

Selective Study Highlights:

- STARRT-AKI – After publication of the main manuscript, the STARRT-AKI team have focused on several strategic secondary analyses. The STARRT-AKI team have published eight secondary manuscripts to date (See: [Documents | Department of Critical Care Medicine \(ualberta.ca\)](#)).
- MEGA-ROX – Two ICUs in the Edmonton Zone (UAH and GNH) continue to enroll and contribute to the multi-national Mega-ROX collaborative, the largest RCT undertaken in ICU settings to date exploring oxygen targets in critically ill patients receiving invasive mechanical ventilation (See: [Mega-ROX - ANZICS](#)).
- WISDOM – This new multi-centre pilot trial aiming to evaluate CRRT dose-intensity and will leverage the network of centers contributing to STARRT-AKI.

Selective Collaboration Highlights:

- Latin American Surgical Outcomes Study (LASOS) – is an international, observational cohort study to confirm the incidence of 30-day in-hospital complications following elective or emergency in-patient surgery in Latin American countries ([LASOS Study - Homepage \(lasos-study.org\)](#)). I serve on the steering committee.
- MOSAICC Trial – is an UK-based evaluation of NaHCO₃ supplementation in critically ill patients with ([Evaluating the clinical and cost-effectiveness of Sodium Bicarbonate administration for critically ill patients with Acute Kidney Injury \(MOSAICC\) | ICNARC](#)). I serve on the steering committee.
- AKI-EPI-2 Study – is an international observational cohort study focused on describing the epidemiology of AKI and RRT utilization.
- LOGIC Consortium – is an international collaboration focused on ICU benchmarking (See: [Logic – Linking of Global Intensive Care \(icubenchmarking.com\)](#); [National ICU Registries as Enablers of Clinical Research and Quality Improvement - PubMed \(nih.gov\)](#)). The DCCM has facilitated Alberta representation in this global initiative.

Selective Publication Highlights:

- Zampieri FG, Serpa-Neto A, Wald R, Bellomo R, **Bagshaw SM**; STARRT-AKI and RENAL Investigators. Hierarchical endpoints in critical care: A post-hoc exploratory analysis of the standard versus accelerated initiation of renal-replacement therapy in acute kidney injury and the intensity of continuous renal-replacement therapy in critically ill patient trials. *J Crit Care.* 2024 Aug;82:154767.
- **Bagshaw SM**, Abbott A, Beesoon S, Bowker SL, Zuege DJ, Thanh NX. A population-based assessment of avoidable hospitalizations and resource use of non-vaccinated patients with COVID-19. *Can J Public Health.* 2023 Aug;114(4):547-554.
- Bowker SL, Williams K, Volk A, Auger L, Lafontaine A, Dumont P, Wingert A, Davis A, Bialy L, Wright E, Oster RT, **Bagshaw SM**. Incidence and outcomes of critical illness in indigenous peoples: a systematic review and meta-analysis. *Crit Care.* 2023 Jul 13;27(1):285.

Funding Highlights:

1. Project: *Critical Illness Among Metis People*
Funder: CCCTG/Network of Network Grant.
PI: Josh Butcher (UAlberta)
Role: co-PI
Award: \$25,000.
2. Project: *Anti-Indigenous Bias Among ICU Healthcare workers.*
Funder: Critical Care Strategic Clinical Network (Seed) Grant:
PI: Sadie Deschenes (UAlberta)
Role: co-PI
Award: \$15,000.
3. Project: *ALTER-AKI (Albumin to prevent intra-dialytic hypotension during IHD).*
Funder: CIHR Project Grant:
PI: Edward Clark (UOttawa)
Role: co-PI
Award: \$956,249.
4. Project: *WISDOM trial - for integration of EHR order, reporting and data for the trial*
Funder: Accelerated Clinical Trials (ACT) Network:
PI: Sean Bagshaw (UAlberta)
Award: \$18,000.
5. Project: *AKI-EPI-2*
Funder: Baxter Investigator Initiated Grant program:
Role: PI and Executive SC member.
Global PI: Dr. Eric Hoste and Dr. Antoine Schneider
Award: \$444,870.

Patient and Family Partner Highlights:

- Partnered with D'Arcy Duquette, a long-standing patient and family centered care advocate and patient partner with the Critical Care Strategic Clinical Network™, to participate in the 31st Acute Dialysis Quality Initiative (ADQI) (October 25, 2023 - Stresa, Italy), presentation at the Kidney Disease Clinical Trials (KDCT) (March 16, 2024 - Washington, DC) and in the KDIGO Clinical Practice Guidelines for Acute Kidney Injury committee (June 25 – Amsterdam, NL).
- In collaboration with a *Patient and Family Partnership Committee*, published a study focused on public perceptions of consent for pragmatic clinical trials in ICU settings (Reference: Opgenorth D, Duquette DJ, Tyre L, Auld R, Crowder K, Gilchrist P, Young PJ, **Bagshaw SM**. Public perception of participation in low-risk clinical trials in critical care using waived consent: a Canadian national survey. *Can J Anaesth.* 2024 Jul;71(7):1015-1022).

Notable Achievements:

- Invited to participate in a Royal Society of Canada Health Policy Briefing (Jones E. Wright J, **Bagshaw SM**, Dyck E, Goldenberg MJ, Holmes B. The Humanities and Health Policy. Royal Society of Canada. 2023) and public webinar - *Putting Humanities to Work for Canadians' Health* – Royal Society of Canada (January 18, 2024 - <https://www.federationhss.ca/en/putting-humanities-work-canadians-health>).
- Participated in three Acute Disease Quality Initiative (ADQI) consensus meetings focused on Blood Purification (Vicenza, Italy), Endpoints for Clinical Trials in Critical Care Nephrology (Stresa, Italy), and the Role of Sex and Gender in AKI (San Diego, US).
- Invited participant/speaker in nine regional, national and international conferences.



Dr. Constantine Karvellas

Dr. Constantine Karvellas is a Professor (Critical Care Medicine and Hepatology) at the University of Alberta who recently transitioned his primary appointment to the Department of Critical Care Medicine on April 1st, 2024. He started the Critical Care Hepatology Fellowship program at the University of Alberta and recently had their first fellow/trainee graduate in 2023-2024. He was the lead author on the recently completed American Association of the Study of Liver Diseases (AASLD) *Clinical Practice Guidance on Acute-on-chronic liver failure and the management of critically ill patients with cirrhosis*. For his research and academic achievements as well as his continued representation of the University of Alberta in international conferences and meetings.

Trainee Updates:

- Dr. Victor Dong (MSc, Clinical Epidemiology, School of Public Health) – primary supervisor. Will be defending his thesis in the Fall of 2024.
- Dr. Priyanka Chandran (Postgraduate Medical Education/Critical Care Hepatology Fellow) – primary supervisor. From Aster Medical City, Keral, India.
- Dr. Joshua Hefler (PhD) – thesis committee member.

Select Study Highlights:

- CHANCE – Site PI for this global, multicenter, observational study designed to assess the benefit of liver transplantation in patients with acute-on-chronic liver failure (ACLF) grade 2 or grade 3. This study counts with the support of the **International Liver Transplantation Society (ILTS)** and the **European Liver and Intestine Transplant Association (ELITA)** to recruit 2000 patients in 80 centers in 27 countries around the world. ClinicalTrials.gov Identifier: **NCT04613921**. Enrollment was completed in the spring of 2024.

Select Collaboration Highlights:

- US Acute Liver Failure Study Group – an international NIH funded collaboration. I serve as the lead for Canada and serve on the steering committee.
- American Association for the Study of Liver Disease – I serve as the Chair of the Acute on Chronic Liver Failure Special Interest Group
- Anesthesia/Critical Care Committee for the International Liver Transplantation Society – outgoing chair.
- ELIPTO – a CIHR-funded study evaluating perioperative fluid balance in Liver Transplantation. I serve as a co-investigator.
- REFIL – a CIHR-funded study evaluating perioperative fluid balance in Liver Transplantation. I serve as a co-investigator.
- Co-author on the recently published Society of Critical Care Medicine and American Society of Health-System Pharmacists *Guideline for the Prevention of Stress-Related Gastrointestinal Bleeding in Critically Ill Adults*

Select Publication Highlights:

- Hernaez R, **Karvellas CJ**, Liu Y, Sacleux SC, Khemichian S, Stein LL, Shetty K, Lindenmeyer CC, Boike JR, Simonetto DA, Rahimi RS, Jalal PK, Izzy M, Kriss MS, Im GY, Lin MV, Jou JH, Fortune BE, Cholankeril G, Kuo A, Mahmud N, Kanwal F, Saliba F, Sundaram V, Artzner T, Jalan R; Multi-Organ Dysfunction and Evaluation for Liver Transplantation (MODEL) Consortium. The novel SALT-M score predicts 1-year post-transplant mortality in patients with severe acute-on-chronic liver failure. *J Hepatol*. 2023 Sep;79(3):717-727.
- Stravitz, RT, Fontana RJ, **Karvellas CJ**, Durkalski V, McGuire B, Rule JA, Tujios S, Lee WM; Acute Liver Failure Study Group. Future Directions in Acute Liver Failure. *Hepatology*. 2023 Oct 1;78(4):1266-1289.
- Cardoso FS, Kim M, Pereira R, Bagulho L, Fidalgo P, Pawlowski A, Wunderink R, Germano N, Bagshaw SM, Abraldes JG, **Karvellas CJ**. Early serum ammonia variation in critically ill cirrhosis patients: a multicenter cohort study. *Aliment Pharmacol Ther*. 2023 Oct;58(7):715-724.
- **Karvellas CJ**, Bajaj JS, Kamath PS, Napolitano L, O'Leary JG, Solà E, Subramanian R, Wong F, Asrani SK. AASLD Practice guidance on Acute-on-chronic liver failure and the management of critically ill patients with cirrhosis. *Hepatology*. 2024 Jun 1; 79(6):1463-1502.
- Dong V, Robinson AM, Dionne JC, Cardoso FS, Rewa OG, **Karvellas CJ**. Continuous Renal Replacement Therapy and Survival in Acute Liver Failure: A Systematic Review and Meta-Analysis. *J Crit Care*. 2024 Jan 8; 81:154513.

Funding Highlights:

1. Project: *The effects of an intraoperative targeted low-splanchnic blood volume restrictive fluid management strategy compared to a liberal one on postoperative outcomes in liver transplantation - the REFIL (REstrictive Fluid Management In Liver transplantation) pilot multicenter randomized trial*
Funder: CIHR Project Grant
PI: Francois Carrier
Role: co-I
Award: \$348,075

Notable Achievements:

- **2024 Canadian Association for the Study of Liver/Canadian Liver Foundation Visiting Professorship Award** in recognition of being “an outstanding individual in hepatology, an excellent communicator, and with an interest in clinical, basic science or translational liver research.” Awarded \$10K to give ‘State of the Art’ lectures in Acute/Acute-on-chronic liver failure at Liver Transplant centres across Canada.
- **Invited speaker at International Critical Care/Hepatology Congresses**
 - American Association for the Study of Liver Diseases (AASLD) Liver Meeting 2023 Post-graduate course (November 2023)
 - Society of Critical Care Medicine (SCCM) Annual Congress in Phoenix, Arizona (January 2024)
 - International Liver Transplant Society (ILTS) Annual Congress (Houston, USA May 2024)



Dr. Demetrios Kutsogiannis

Dr. Demetrios Kutsogiannis is a Professor for the Faculty of Medicine and Dentistry at the University of Alberta, an adjunct professor with the School of Public Health at the University of Alberta, a practicing Neurointensivist in the Neurosciences ICU at the University of Alberta Hospital, and has been an intensivist and the director of Research for the Neurosciences ICU and Royal Alexandra Hospital ICU for over 20 years. He received his subspecialty designation in Neurocritical Care from the United Council of Subspecialties in 2014. He was past President of the Canadian Neurocritical Care Society, exemplifying his experience with neurocritical care populations. His primary research interests include neurocritical, mechanical ventilation, sepsis with an interest in pneumonia and epidemics, substance use disorder and end of life care in the ICU.

Trainee Highlights:

- [Jashan Saini](#) - (Graduate Student, MSc Medicine). He presented preliminary results of a pilot portion of data for the Incidence of Substance Use Disorder (SUD) study at the 2023 CCCF (presentation)

Selective Study Highlights:

- [ASH-1](#) – The pilot study (ASH-1) was conducted in the Neurosciences ICU, part of Dr. Kutsogiannis' ongoing collaboration with Dr. Sherif Mahmoud (PhD & R.Ph). The pilot trial was published in *Frontiers in Neurology* (**Nimodipine systemic exposure and outcomes following aneurysmal subarachnoid hemorrhage: a pilot prospective observational study (ASH-1 study) - PubMed (nih.gov)**). We have received an award of \$632,520 from the Hospital Foundation/Faculty of Pharmacy and Pharmaceutical Sciences and were awarded CIHR Spring 2024 project grant for this study. Currently this study is accruing patients into the second phase of this trial.
- [Substance Use Disorder \(SUD\) study](#) – I am the principal investigator for this study. We are evaluating the incidence and outcomes of patients with substance use disorder admitted to the Royal Alexandra Hospital ICU.

Selective Collaboration Highlights:

- [ISARIC](#) – this is an international collaborative platform through which global, patient-oriented clinical studies can be developed, executed and shared. I have collaborated on over 25 publications arising from COVID-19 publications with involvement with this group, including local participation in the SPRINT SARI hospital-based surveillance database of COVID 19.
- [LEADS](#) – This is a CIHR funded pilot trial to evaluate liberation from mechanical ventilation using extubation advisor decision support. I am the local principal investigator and serve on the steering committee
- [REMAP-CAP](#) – this is a global network of leading experts: novel and innovative adaptive trial design to evaluate a number of treatment options for pneumonia. I am a co-applicant and co-investigator of this trial.

- EUROBACT-2 – this is an investigator initiated global collaborative. I participated in the main publication focused on the presentation, management, and outcomes of older compared to younger adults with hospital-acquired bloodstream infections in the intensive care unit: a multicenter cohort study (**Presentation, management, and outcomes of older compared to younger adults with hospital-acquired bloodstream infections in the intensive care unit: a multicenter cohort study - PubMed (nih.gov)**).
- BRAINapt – this is a traumatic brain injury adaptive platform program with the Canadian Critical Care Trials Group. I am a co-investigator with this program. Locally we participated in HEMOTION included under this platform which was published in NEJM (co-author).

Select Publication Highlights:

- Turgeon AF, Fergusson DA, Clayton L, Patton MP, Neveu X, Walsh TS, Docherty A, Malbouisson LM, Pili-Floury S, English SW, Zarychanski R, Moore L, Bonaventure PL, Laroche V, Verret M, Scales DC, Adhikari NKJ, Greenbaum J, Kramer A, Rey VG, Ball I, Khwaja K, Wise M, Harvey D, Lamontagne F, Chabanne R, Algird A, Krueper S, Pottecher J, Zeiler F, Rhodes J, Rigamonti A, Burns KEA, Marshall J, Griesdale DE, Sisonetto LS, **Kutsogiannis DJ**, Roger C, Green R, Boyd JG, Wright J, Charbonney E, Nair P, Astles T, Sy E, Hébert PC, Chassé M, Gomez A, Ramsay T, Taljaard M, Fox-Robichaud A, Tinmouth A, St-Onge M, Costerousse O, Lauzier F; HEMOTION Trial Investigators on behalf of the Canadian Critical Care Trials Group, the Canadian Perioperative Anesthesia Clinical Trials Group, and the Canadian Traumatic Brain Injury Research Consortium. Liberal or Restrictive Transfusion Strategy in Patients with Traumatic Brain Injury. *N Engl J Med*. 2024 Jun 13. doi: 10.1056/NEJMoa2404360. Epub ahead of print. PMID: 38869931
- Eastwood G, Nichol AD, Hodgson C, Parke RL, McGuinness S, Nielsen N, Bernard S, Skrifvars MB, Stub D, Taccone FS, Archer J, **Kutsogiannis D**, Dankiewicz J, Lilja G, Cronberg T, Kirkegaard H, Capellier G, Landoni G, Horn J, Olasveengen T, Arabi Y, Chia YW, Markota A, Hænggi M, Wise MP, Grejs AM, Christensen S, Munk-Andersen H, Granfeldt A, Andersen GØ, Qvigstad E, Flaa A, Thomas M, Sweet K, Bewley J, Bäcklund M, Tiainen M, Iten M, Levis A, Peck L, Walsham J, Deane A, Ghosh A, Annoni F, Chen Y, Knight D, Lesona E, Tlayjeh H, Svenšek F, McGuigan PJ, Cole J, Pogson D, Hilty MP, Düring JP, Bailey MJ, Paul E, Ady B, Ainscough K, Hunt A, Monahan S, Trapani T, Fahey C, Bellomo R; TAME Study Investigators. Mild Hypercapnia or Normocapnia after Out-of-Hospital Cardiac Arrest. *N Engl J Med*. 2023 Jul 6;389(1):45-57. doi: 10.1056/NEJMoa2214552. Epub 2023 Jun 15. PMID: 37318140.

Funding Highlights:

1. Project: *Nimodipine Systemic Exposure and Outcomes Following Aneurysmal Subarachnoid Hemorrhage: A Prospective Multicenter Observational Study (ASH-II Study)*
Funder: CIHR
PI: Dr. S. Mahmoud (UofA)
Role: Co-applicant
Award: \$722,926.
2. Project: *Establishing An International Core Outcome Set for Subarachnoid Hemorrhage (SAH) - What and How to Measure Outcomes in SAH Research*
Funder: Critical Care Strategic Clinical Network (Seed) Grant:
Funder: CIHR
PI: English, S (Ottawa)
Role: Co-applicant/Local PI
Award: \$726,752
3. Project: *Appreciation of Humanity, Empathy and Compassion among Critical Care Physicians - A Mixed Methods Study*
Funder: PSI Foundation
PI: Galvin, Imelda (Kingston ON)
Role: Co-applicant
Award: \$65,500
4. Project: *The incidence and clinical outcomes of patients with substance use disorders admitted to intensive care*
Funder: Royal Alexandra Hospital Foundation
PI: Jim Kutsogiannis (RAH)
Award: \$150,000
5. Project: *BRAINapt TBI Adaptive Platform Trial*
Funder: CIHR
PI: Turgeon (Uvalal)
Role: Co-applicant,
Award: \$444,870.
6. Project: Portfolio Studies Research Infrastructure Support
Funder: CCCTG
PI: Kutsogiannis DJ
Award: 35,000
7. The Canadian Severe Acute Respiratory Infection, Prospective, Perpetual Observational Study: Informing Clinical Care and the Public Health Response: Public Community, Population Health
Funder: CIHR
Role: Co-applicant
PI: Fowler (Sunnybrook)
Award: \$ 331,667
8. Liberation from mechanical ventilation using Extubation Advisor Decision Support: The multicentre (LEADS) Pilot Trial
Funder: CIHR
PI: Burns K, Seely AJ
Role: Co-Applicant
Award: \$455,176



Dr. Vincent Lau

Dr. Vincent Lau has continued as a clinician-scientist in the Department of Critical Care Medicine (DCCM) at the University of Alberta, and continues to work as academic intensivist at the University of Alberta Hospital Garner King General Systems ICU. He continues to be the medical student director at GSICU and leads the medical student Critical Care Trauma Club. He also continues to lead the DCCM Journal Club.

Trainee Highlights:

- Kim Tworek - (Undergraduate Medical Education) – published KETOROLAC-ICU national survey in *Canadian Journal of Anaesthesia*.
- Lize-Mari Du Toit - (Undergraduate Medical Education) – submitted KETOROLAC-ICU for publication.
- Jacques Du Toit - (Undergraduate Medical Education) – assisted with EXIT-ICU national survey data analysis.

Selective Study Highlights:

- Cook D, Deane A, Lauzier F, Zytaruk N, Guyatt G, Saunders L, Hardie M, Heels-Ansdell D, Alhazzani W, Marshall J, Muscedere J, Myburgh J, English S, Arabi YM, Ostermann M, Knowles S, Hammond N, Byrne KM, Chapman M, Venkatesh B, Young P, Rajbhandari D, Poole A, Al-Fares A, Reis G, Johnson D, Iqbal M, Hall R, Meade M, Hand L, Duan E, Clarke F, Dionne JC, Tsang JLY, Rochweg B, Karachi T, Lamontagne F, D'Aragon F, St Arnaud C, Reeve B, Geagea A, Niven D, Vazquez-Grande G, Zarychanski R, Ovakim D, Wood G, Burns KEA, Goffi A, Wilcox ME, Henderson W, Forrest D, Fowler R, Adhikari NKJ, Ball I, Mele T, Binnie A, Trop S, Mehta S, Morgan I, Loubani O, Vanstone M, Fiest K, Charbonney E, Cavayas YA, Archambault P, Rewa OG, **Lau V**, Kristof AS, Khwaja K, Williamson D, Kanji S, Sy E, Dennis B, Reynolds S, Marquis F, Lellouche F, Rahman A, Hosek P, Barletta JF, Cirrone R, Tutschka M, Xie F, Billot L, Thabane L, Finfer S; REVISE Investigators. Stress Ulcer Prophylaxis during Invasive Mechanical Ventilation. *N Engl J Med*. 2024 Jul 4;391(1):9-20. doi: 10.1056/NEJMoa2404245. Epub 2024 Jun 14. PMID: 38875111.
- Quigley N, Binnie A, Baig N, Opgenorth D, Senaratne J, Sligl WI, Zuege DJ, Rewa O, Bagshaw SM, Tsang J, **Lau VI**. Modelling the potential increase in eligible participants in clinical trials with inclusion of community intensive care unit patients in Alberta, Canada: a decision tree analysis. *Canadian Journal of Anaesthesia*. 2024 Mar;71(3):390-399. doi: 10.1007/s12630-023-02669-y. Epub 2023 Dec 21.
- Ma CH, Tworek KB, Kung JY, Kilcommons S, Wheeler K, Parker A, Senaratne J, Macintyre E, Sligl W, Karvellas CJ, Zampieri FG, Kutsogiannis DJ, Basmaji J, Lewis K, Chaudhuri D, Sharif S, Rewa OG, Rochweg B, Bagshaw SM, **Lau VI**. Systemic Nonsteroidal Anti-Inflammatories for Analgesia in Postoperative Critical Care Patients: A Systematic Review and Meta-Analysis of Randomized Control Trials. *Crit Care Explorations*. 2023 Jun 28;5(7):e0938. doi: 10.1097/CCE.0000000000000938. eCollection 2023 Jul.
- Mellett J, Andersen SK, Deschenes S, Kilcommons S, Douma MJ, Montgomery CL, Opgenorth D, Baig N, Fiest KM, Rewa OG, Bagshaw SM, **Lau VI**. Examining internal & eXternal Influences leading to health care worker Turnover in ICUs during the COVID-19 pandemic (EXIT-ICU): a qualitative descriptive interview study. *Canadian Journal of Anesthesia* (accepted).

Select Collaboration Highlights:

- **REVISE** - (PI Dr. Deborah Cook; McMaster University): This study revisited the role of GI prophylaxis with proton-pump inhibitors in critically ill patients. Recruitment was completed at the end of 2023 and results were presented at the Critical Care Review 2024 in Belfast in June and simultaneously published in the New England Journal of Medicine.

Grants & Funding:

1. Project: *REVISE Cost-Effectiveness of Stress Ulcer Prophylaxis in the Critically Ill: Economic Evaluation of the REVISE Trial*
Funder: Hamilton Academic Sciences Organization
PI: Deborah Cook, Feng Xie, Rob Fowler, Brittany Humphries
Role: Co-PI
Award: \$95,916.25
2. Project: *Examining internal & external Influences leading to health care worker Turnover in ICUs: EXIT-ICU Study (qualitative mixed-methods study)*
Funder: Alberta Critical Care Strategic Clinical Network Seed Grant
PI: Sadie Deschenes, Sarah Andersen, James Mellett, Sebastian Kilcommons, Oleksa Rewa, Sean Bagshaw
Role: Principal Investigator
Award: \$15,000.00
3. Project: *DEFEND-CAP (Dexamethasone For Preventing Deterioration In Community Acquired Pneumonia)*
Funder: CIHR Project Team Grant
PI: Ryan Zarychanski, Sylvain Lothier, Emily Macdonald, Patrick Lawler
Role: Co-PI
Award: \$5,500,000.00
4. Project: *Traumatic Brain Injury Adaptive Platform Trial (BRAINapt)*
Funder: CIHR Project Team Grant
PI: Alexis Turgeon-Fournier, Francois Lauzier, Shane English, Lynne Moore, Jay Park, Michelle Macdonald, Ryan Zarychanski
Role: Co-PI
Award: \$4,846,275.00

Notable Achievements:

- Invited mentor for the LiFTING Sepsis Canada Research Training Platform



Dr. Kimberly Macala

Dr. Kimberly F. Macala is an Associate Professor in the Department of Critical Care Medicine and an Associate Adjunct Professor of Anesthesiology and Pain Medicine in the Faculty of Medicine & Dentistry. She is a practicing Anesthesiologist and Intensivist at the Royal Alexandra Hospital, where she has worked as an attending for the past nine years. Dr. Macala earned her Ph.D. in Experimental Surgery from the University of Alberta in 2022. Dr. Macala's research activities encompass both preclinical laboratory research conducted in her laboratory at the University of Alberta Hospital, as well as Epidemiological and Quality Improvement Research conducted in the ICU at the Royal Alexandra Hospital. She is also a member of the Women and Children's Health Research Institute. Her research interests include neonatal diseases, women's health, sepsis and enhancing clinical care in the ICU. She is also committed to addressing systemic issues related to combined Morbidity and Mortality for Anesthesia and ICU.

Trainee Highlights:

- Ibrahim Khodabocus (Postgraduate education – Ph.D candidate) Has been awarded HSFC/CBRF/CIHR-ICRH Doctoral Personnel Award for Black scholars (2023), Women and Children's Research Institute Graduate Student Scholarship (2023), University of Alberta Doctoral Entrance Scholarship (2023), Alberta Graduate Excellence Scholarship (2023) for research examining the effects of neonatal and adult sepsis on organ function and energy metabolism.
- Jennie Vu (Postgraduate education – Ph.D candidate) Has been awarded the Motyl Scholarship for research examining the short- and long-term cardiovascular, energetic, and metabolic ramifications of neonatal sepsis.
- Si Ning Liu (Postgraduate education – Ph.D candidate) Has been awarded the Alberta Graduate Excellence Scholarship (2023), Alberta Graduate Excellence Scholarship (2023) for research examining the effects of neonatal and adult sepsis on organ function and energy metabolism.
- Ben Magalnick (Undergraduate education) Has been awarded the Office of the Provost VP (Academic) Summer Studentship Award) for research examining the effects of neonatal sepsis on organ function and energy metabolism.
- Kimberly Tworek (Undergraduate medical education) Was funded by the Royal Alexandra Hospital Foundation, Women and Children's Research Institute Student Scholarship (2021), and Alberta Innovates Summer Research Studentship Program Award (2022) for researching novel methods of monitoring neonatal sepsis and examining cardiovascular outcomes of neonatal sepsis.

Selective Study Highlights:

- Sepsis in Alberta: Validating the new Sepsis-3 definitions in the Alberta population study, Royal Alexandra Hospital, University of Alberta, Edmonton, Alberta. This study aims to validate the new Sepsis-3 definitions (including qSOFA) in several sub-populations of critically ill patients within Alberta, to determine the incidence of sepsis and septic shock in the Alberta population and will include an economic evaluation to determine outcomes and cost of sepsis and septic shock. Data analysis is ongoing.
- Construction of an OR to ICU Handover Tool and Effect of Use on Care-Team Satisfaction and Patient Handover: Dr. Macala developed a new clinical procedure for transfer of patients between the operating room and intensive care unit as well as for the transfer of patients from the post-anesthetic care unit to the intensive care unit for the Royal Alexandra Hospital, Edmonton, Alberta. These procedures were subsequently adapted for use in other Edmonton hospitals. The results from this QI project have been submitted for publication.
- Neonatal sepsis and its sex-specific effects on vascular development: Protocol for co-producing a framework and integrated resource platform for engaging patients in laboratory-based research.

Selective Collaboration Highlights:

- Strategic Engagement of Patients in Sepsis preclinical Studies (SEPSIS) – A Priority-Setting Exercise to Identify Patient Important Questions.
- Canadian Critical Care Translational Biology Group – ongoing collaboration and member of the CCCTBG.
- Canadian National Patient Engagement in Basic Science Group – Co-investigator, published and continuing work for developing a novel framework for patient/community involvement in basic science.
- Canadian National Preclinical Sepsis Platform – Co-investigator, published articles and continuing research concerning conduction of national preclinical animal randomized control studies regarding sepsis outcomes. Most recent publication in Intensive Care Medicine Experimental Development and characterization of a fecal-induced peritonitis model of murine sepsis: results from a multi-laboratory study and iterative modification of experimental conditions.
- Sepsis Canada Network – Nationally coordinated research network funded by the Canadian Institute for Health Research to further understand the causes of sepsis, improve care and outcomes for patients with sepsis. Locally Dr. Macala is conducting a project on Validating the new Sepsis-3 definitions in the Alberta population under this umbrella with hopes to collaborate with sepsis researchers on integrating early identification of sepsis using machine learning models into the electronic medical record systems across the country.
- REMAP-CAP – a global network of leading experts: novel and innovative adaptive trial design to evaluate treatment options for pneumonia. Dr. Macala is a sub-investigator at the Royal Alexandra Hospital Site.

- Departments of Anesthesiology and Pain Medicine and Critical Care Medicine Liaison – to enable resolution of systematic problems and facilitate discussion of combined Morbidity and Mortality cases for Anesthesia and ICU at the Royal Alexandra Hospital.
- Substance Use Disorders in the ICU – Member of ICU physician group, to participate in research program at the Royal Alexandra Hospital, University of Alberta, Edmonton, Alberta.

Selective Publication Highlights:

- Lalu MM, Richards DP, Foster M, French B, Crawley AM, Fiest KM, Hendrick K, **Macala KF**, Mendelson AA, Messner P, Nicholls S, Presseau J, Seguire C, Sullivan P, Thebaud B, Fergusson DA. Protocol for co-producing a framework and integrated resource platform for engaging patients in laboratory-based research. *Research Involvement and Engagement*. 2024;10:25 (Feb 12, 2024 - **Protocol for co-producing a framework and integrated resource platform for engaging patients in laboratory-based research | Research Involvement and Engagement | Full Text (biomedcentral.com)**).
- Sharma N, Chwastek D, Dwivedi D, Schlechte J, Yu I, McDonald B, Arora J, Bourque S, Cani E, Engelberts D, Kuhar E, Cepinskas G, Eng M, Gill S, Jahandideh F, **Macala K**, Medeiros S, Panahi S, Pape C, Sontag D, Sunohara-Neilson J, Fergusson DA, Fox-Robichaud A, Liaw P, Lalu MM. Development and characterization of a fecal-induced peritonitis model of murine sepsis: results from a multi-laboratory study and iterative modification of experimental conditions. *Intensive Care Medicine Experimental*. 2023 Jul 17;11(1):45.
- Zhang M, Fergusson DA, Sharma R, Khoo C, Mendelson AA, McDonald B, **Macala KF**, Sharma N, Gill SE, Fiest KM, Lehmann C, Shorr R, Jahandideh F, Bourque SL, Liaw PC, Fox-Robichaud A, Lalu MM. Sex-based analysis of treatment responses in animal models of sepsis: a preclinical systematic review protocol. *Systematic Reviews*. 2023 Mar 21;12(1):50.
- Salim S, Al-Maki N, **Macala KF**, Mueller TF, Churchill TA, Bourque SL, Khadaroo RG. Oncostatin M Receptor Type II Knockout Mitigates Inflammation and Improves Survival in Sepsis in Mice. *Biomedicines*. 2023 Feb 8;11(2):483.

Funding Highlights:

1. Project: *Strategic Engagement of Patients in Sepsis preclinical Studies (SEPSIS): A Priority-Setting Exercise to Identify Patient Important Questions*
Funder: CIHR Planning and Dissemination Grant
PI: Lalu, Fergusson (Ottawa Hospital Research Institute)
Role: Co-applicant
Award: \$30,000
2. Project: *Strategic Engagement of Patients in Sepsis preclinical Studies (SEPSIS): Using Knowledge Synthesis to Answer a Patient Identified Question*
Funder: University of Ottawa Department of Anesthesiology and Pain Medicine
PI: Lalu, (Ottawa Hospital Research Institute)
Role: Co-applicant
Award: \$30,000

3. Project: *Patient engagement in basic science: co-development and pilot evaluation of a novel framework* Funder: CIHR – Project Grant
PI: Lalu (Ottawa Hospital Research Institute)
Role: Co-applicant
Award: \$504,900
4. Project: *Engaging patients in laboratory-based cell therapy research: Co-production and field testing of a framework*
Funder: Stem Cell Network, Translation & Society Team Award
PI: Lalu (Ottawa Hospital Research Institute)
Role: Co-applicant
Award: \$300,000
5. Project: *Targeting renal vascular and mitochondrial dysfunction to prevent acute kidney injury in sepsis*
Funder: CIHR
PI: Bourque (UofA)
Role: Co-applicant
Award: \$830,000
6. Project: *Canadian Sepsis Research Network: Improving Care Before, During and After Sepsis*
Funder: CCCTG
PI: Robichaud
Role: Co-investigator
Total Budget: Can \$5,700,000

Notable Achievements:

- Dr. Macala was awarded Junior Resident Teacher of the Year Award, Department of Critical Care Medicine, Canada, University of Alberta in 2024.



Dr. Janek Senaratne

Dr. Janek Senaratne has continued as the lead for research at the Grey Nuns Hospital CCU/ICU Research Unit. He has worked to develop the Grey Nuns Community Hospital ICU Research Office as the highest recruiting research office in the Edmonton Zone. Dr. Senaratne maintains a research interest in critical care cardiology.

Trainee Highlights:

- Dr. Heather Perry (Postgraduate medical education) – has developed a critical care fellow clinical trialist training pathway.

Select Study Highlights:

- MINT – completed recruitment having recruited 61 participants (16th highest site enrollment worldwide)
- LIBERATE – ongoing recruitment with 70 participants recruited (highest enrollment study site)
- FISSH – ongoing recruitment with 24 participants recruited.
- SAVE-ICU – ongoing recruitment with 14 participants recruited.
- MEGA-ROX – ongoing recruitment with 107 participants recruited.
- VICTORION-2-PREVENT – completed recruitment having recruited 50 participants (highest Canadian recruitment site, 3rd in North America)
- SOS-AMI – ongoing recruitment with 37 participants recruited (2nd highest Canadian recruitment site)

Select Publication Highlights:

- van Diepen S., Le May M., Alfaro P., Goldfarb M., Luk A., Mathew R., Peretz-Larochelle M., Rayner-Hartley E., Russo J., **Senaratne J.**, Ainsworth C., Belley-Cote E., Fordyce C., Kromm J., Overgaard C., Schnell G., Wong G. Canadian Cardiovascular Society/Canadian Cardiovascular Critical Care Society/Canadian Association of Interventional Cardiology clinical practice update on optimal post cardiac arrest and refractory cardiac arrest patient care. *Canadian Journal of Cardiology* 2024;40:524-539.
- van Diepen S., Zheng Y., **Senaratne J.**, Tyrrell B., Das D., Thiele H., Henry T., Bainey K., Welsh R. Reperfusion in patients with ST-segment-elevation myocardial infarction with cardiogenic shock and prolonged interhospital transport times. *Circulation: Cardiovascular Interventions* 2024;e013415.
- Carson J., Brooks M., Hebert P., Goodman S., Bertolet M., Glynn S., Chaitman B., Simon T., Lopes R., Goldsweig A., DeFilippis A., Abbott J., Potter B., Carrier F., Rao S., Cooper H., Ghafghazi S., Fergusson D., Kostis W., Noveck H., Kin S., Tessalee M., Ducrocq G., de Barros E., Silva P., Triulzi D., Alswailer C., Menegus M., Neary J., Uhl L., Strom J., Fordyce C., Ferrari E., Silvain J., Wood F., Daneault B., Polonsky T., Senaratne M., Puymirat E., Bouleti C., Lattuca B., White H., Kelsey S., Steg P., Alexander J., MINT Investigators (**Site Co-Investigator – Senaratne J.**). Restrictive or liberal transfusion strategy in myocardial infarction and anemia. *New England Journal of Medicine* 2023;389:2446-2456.



Dr. Jocelyn Slemko

Jocelyn Slemko is a new member of the Department, and her body of academic work will surround development of a multi-level, multipronged, comprehensive patient safety program for critical care and in medical education. She has just successfully completed her M.Sc. with Distinction in Patient Safety and Clinical Human Factors through the University of Edinburgh, with a final dissertation entitled “Methods of Adverse Event Detection in Intensive Care: A Systematic Review”. Upcoming work will include detection and mitigation of ICU adverse events, the study of how human factors impact ICU functioning with the development of a taxonomy, the use of in situ simulation for the study of latent safety threats and the facilitation of multidisciplinary engagement in patient safety. She also continues to assist with local and provincial quality initiatives, including ROSA (reduction of sedation and analgesia) and unit-based quality improvement at SCH, GS-ICU at the University, and Neuro-ICU.

Trainee Highlights:

- Dr. Jay Gorman (Postgraduate medicine/Critical Care Medicine) - has been instrumental in the assistance with and the advancement of our work surrounding detection of adverse events in critical care. He has been able to characterize the existing literature on this topic, serve as a second reviewer in a systematic review, and successfully synthesize the results.

Select Study Highlights:

- LIBERATE – (PI Dr. Oleksa Rewa): This study looks to evaluate midodrine in critically ill patients. I have led recruitment at the Sturgeon Community Hospital and we have recruited 6 participants to this study.
- QUICC – (PI Dr. Vincent Lau): This study aims to validate the EQ-5D-5L tool for quality of life in critically ill patients. I have led recruitment at the Sturgeon Community Hospital and we have recruited 25 participants to the study.

Select Publication Highlights:

- Lau VI, Mah GD, Wang X, Byker L, Robinson A, Milovanovic L, Alherbish A, Odenbach J, Vadeanu C, Lu D, Smyth L, Rohatensky M, Whiteside B, Gregoire P, Luksun W, van Diepen S, Anderson D, Verma S, **Slemko J**, Brindley P, Kustogiannis DJ, Jacka M, Shaw A, Wheatley M, Windram J, Opgenorth D, Baig N, Rewa OG, Bagshaw SM, Buchanan BM. Intrapulmonary and Intracardiac Shunts in Adult COVID-19 Versus Non-COVID Acute Respiratory Distress Syndrome ICU Patients Using Echocardiography and Contrast Bubble Studies (COVID-Shunt Study): A Prospective, Observational Cohort Study. Crit Care Med. 2023 Aug 1;51(8):1023-1032. doi: 10.1097/CCM.0000000000005848. Epub 2023 Mar 27. PMID: 36971440; PMCID: PMC10335602.

Notable Achievements:

- I serve as the Director for the Research Office at the Sturgeon Community Hospital ICU. This Research Office was only officially launched in February 2024. We have hired a full time research coordinator, and are participating in multiple research programs including QUICC, LIBERATE and REVIVE.
- I have just completed her first term as the Director of the Core Internal Medicine's Simulation and Skills Program, and has successfully implemented an entirely new curriculum, including authoring over 30 simulation cases for three stages of residency. I have been invited to serve a second term.



Dr. Wendy Sligl

Dr. Wendy Sligl is a Professor in the Department of Critical Care Medicine with adjunct appointments in the Division of Infectious Diseases (Department of Medicine) and the School of Public Health. She has 94 peer-reviewed publications to date and has been PI or co-investigator on studies holding approximately \$13 million in grant funding. She is the current Senior Medical Director for the Alberta Health Services Critical Care Provincial and Program Improvement Network™; a network of healthcare providers, researchers, educators, operational and medical leaders, policy makers, patients and family partners that work together to address challenges in critical care medicine, drive improvement and embed evidence into daily practice to improve health outcomes and health service delivery.

She is the site principal investigator for two large national/international CIHR-funded studies (BALANCE+, REMAP-CAP) and co-investigator for an additional 15-20 studies. Her research interests include severe respiratory infections, community-acquired pneumonia (CAP), hospital-acquired infections such as HAP/VAP, sepsis and septic shock, emerging infections, bacteremia, antimicrobial stewardship and resistance, and infections in immunocompromised populations.

Trainee Highlights:

- [Dr. Amro Qaddour](#) (Master of Sciences in Translational Medicine). Primary supervisor.

Select Study Highlights:

- [BALANCE](#) and [BALANCE+](#) - (PIs Drs. Nick Daneman and Rob Fowler; University of Toronto): These studies explore various treatments in patients with bacteremia. The BALANCE trial specifically examined 7 vs 14 days of antimicrobial therapy; recruitment is closed and results are pending publication. BALANCE + builds on the prior trial with a number of new treatment domains.
- [REMAP-CAP](#) - (PI Drs. John Marshall and Srin Murthy; Universities of Toronto and British Columbia). This is an adaptive platform trial examining various treatment options for patients with community-acquired pneumonia and is actively enrolling at the University of Alberta Hospital.
- [SNAP](#) - (PIs Drs. Joshua David and Steven Tong, Australia, and site-PI Dr. Stephanie Smith; University of Alberta). This study is an adaptive platform trial examining various treatment options for patients with *S aureus* bacteremia and is actively enrolling at the University of Alberta Hospital.

Select Publication Highlights:

- Tremblay A, Somayaji R, Hoang H, O'Neil C, Sonpar A, Conly J, Murthy S, Fowler R, **Sligl W**. Randomized trial of the safety and efficacy of anti-SARS-CoV-2 mAb in the treatment of patients with nosocomial COVID-19 (CATCO-NOS). *J Assoc Med Microbiol Infect Dis Can.* 2023 Nov 29;8(3):214-223. doi: 10.3138/jammi-2023-0008. PMID: 38058498; PMCID: PMC10697097.



Dr. Sean van Diepen

Dr van Diepen is an Associate Professor in the Department of Critical Care Medicine, cross-appointed to the Division of Cardiology, Department of Medicine at the University of Alberta, and serves as a faculty member of the Canadian VIGOUR Centre. He is co-director of the Cardiac Intensive Care Unit in the Mazankowski Heart Institute. Dr. van Diepen's research interests lie in the care of critically-ill cardiac patients with a specific focus area in cardiogenic shock, critical care cardiology, cardiovascular surgical care, and cardiac arrest care. He is the Principal Investigator of the ABREVIATE and PRESSURE-CABG studies and serves on the executive committee of the Cardiac Critical Care Trials Network.

Trainee Highlights:

- [Andrea Shysh](#) (Postgraduate medical education) – won 1st prize at both the Critical Care Medicine and Cardiovascular Research Days for her work on New and Persistent Psychoactive Medication Use in Intensive Care Unit Survivors with COVID-19. A manuscript has been submitted for peer review.
- [Jeffrey Ye](#) (Postgraduate medical education) – 3rd prize at both the Critical Care Medicine Research Day for his work on EMS and hospital administrative coding to identify out of hospital cardiac arrests.
- [Daniel Koerber](#) (Postgraduate medical education) – His work was successfully published in American Heart Journal, DOI: 10.1016/j.ahj.2024.02.010. Variation in risk-adjusted cardiac intensive care unit (CICU) length of stay and the association with in-hospital mortality
- [Sarah Donnelly](#) (Postgraduate medical education) – Her work was published in Circulation: Cardiovascular Quality and Outcomes, DOI:10.1161/CIRCOUTCOMES.123.010092. Interhospital Variation in Admissions Managed with Critical Care Therapies or Invasive Hemodynamic Monitoring in Tertiary Cardiac Intensive Care Units: An Analysis from the Critical Care Cardiology Trials Network Registry.
- [Sophie Collins](#) (PhD – supervisory committee) – She successfully defended her PhD and published her work in Journal of Applied Physiology, DOI: 10.1152/jappphysiol.00767.2022. The Effect of Inhaled Nitric Oxide on Maximal Oxygen Consumption During Exercise in Acute Hypoxia: a Randomized Double-blind Crossover Trial.
- [Jess Hill](#) (MSc – supervisory committee) - He successfully defended his PhD and published his work in 2 CJC: Open papers DOI: 10.1016/j.cjco.2023.09.007, DOI: 10.1016/j.cjco.2024.03.008

Select Study Highlights:

- [PRESSURE CABG \(NCT04197700\)](#) – Successfully completed enrollment of over 600 patients at CVICU
- [ABREVIATE \(NCT 05081999\)](#) – Awarded \$250K from the Kaye Edmonton Foundation. Enrollment initiated at 3 sites in Alberta.

Select Collaboration Highlights:

- Cardiac Critical Care Trials Network – He serves as executive committee. The network published 8 papers in peer reviewed journals in 2023-24.
- Canadian Cardiovascular Society Clinical Practice Update on Post-Cardiac Arrest Care – He served as writing group chair and the paper was published in CJC DOI: 10.1016/j.cjca.2024.01.012.
- American Heart Association/American College of Cardiology Guideline for the Management of Patients With Chronic Coronary Disease – He served as a writing group member and guideline was published in both Circulation (DOI: 10.1161/CIR.0000000000001168) and JACC (DOI: 10.1016/j.jacc.2023.04.003).
- Scientific expert panel from the Shock Academic Research Consortium on Cardiogenic Shock Definitions – He served as a writing group member and the paper was published in Circulation DOI: 10.1161/CIRCULATIONAHA.123.064527

Selective Publication Highlights: 51 Publications in peer reviewed journals.

- **van Diepen S**, Le May MR, Alfaro P, et al . Optimal Post-Cardiac Arrest and Refractory Cardiac Arrest Patient Care: A Canadian Cardiovascular Society Clinical Practice Update. Canadian Journal of Cardiology 2024; 40:524-539; DOI: 10.1016/j.cjca.2024.01.012
- **van Diepen, S** Zheng, Y, Senaratne, J, et al. Reperfusion in Patients With ST-Segment-Elevation Myocardial Infarction With Cardiogenic Shock and Prolonged Interhospital Transport Times. Circulation: Cardiovascular Interventions 2024 , 17. E013415
- Donnelly, S, **van Diepen, S**. Interhospital Variation in Admissions Managed with Critical Care Therapies or Invasive Hemodynamic Monitoring in Tertiary Cardiac Intensive Care Units Circulation: Cardiovascular Quality and Outcomes 2024, 17. E010092,
- Waksman R, Pahuja M, **van Diepen S**, et al Standardized definitions for cardiogenic shock research: Scientific expert panel from the Shock Academic Research Consortium (SHARC) Circulation 2023; 148:1113– 1126
- Virani SS, Newby LK, Arnold SV, Bittner V, Brewer L, Halli Demeter S, Dixon DL, Fearon WF, Hess B, Johnson HM, Kazi D, Kolte D, Kumbhani D, LoFaso J, Mahtta D, Mark D, B Minissian M, Navar AM, Patel AR, Piano MR, Rodriguez F, Talbot AW, Taqueti VR, Thomas RJ, **van Diepen S**, Wiggins B, Williams MS (2023). AHA/ACC/ACCP/ASPC/NLA/PCNA Guideline for the Management of Patients With Chronic Coronary Disease: A Report of the American Heart Association/American College of Cardiology Joint Committee on Clinical Practice Guidelines . Circulation 2024, DOI: 10.1161/CIR.0000000000001168
- Fernando SM, Qureshi D, Talarico R, Vigod SN, McIsaac DI, Sterling LH, **van Diepen S**, et al. Mental Health Morbidity in Survivors of Cardiogenic Shock Complicating Myocardial Infarction A Population-based Cohort Study. Intensive Care Medicine 2024, DOI: 0.1007/s00134-024-07399-3
- **van Diepen S**, McAlister FA, Chu LM, et al. Association Between Vaccination Status and Outcomes in Patients Admitted to the ICU With COVID-19. Critical Care Medicine 2024; DOI: 10.1097/CCM.0000000000005928

Funding Highlights:

1. Project: *Inotrope versus Placebo Therapy for Cardiogenic Shock*.
Funder: CIHR
PI: R. Matthew; Role: Co-I
Award: \$446,996
2. Project: *CLEAR-HORIZONS study of post sepsis statin use*.
Funder: CIHR
PI: P Lawler; Role: Co-I
Award: \$448,925
3. Project: *Inhaled Treprostinil to improve dyspnea and exercise intolerance in mild COPD; a pilot and feasibility trial*
Funder: United Therapeutics
PI: MK Stickland; Role: CO-I
Award: \$340,000
4. Project: *De-Adoption of -Blockers in patients with stable ischemic heart disease without Reduced LV ejection fraction, ongoing Ischemia, or Arrhythmias: a pragmatic randomized trial (The ABREVIATE Trial)*
Funder: Kaye Foundation
PI: S van Diepen; Role: PI
Award: \$250,000

Notable Achievements:

- Successfully launched and enrolled the first 2 trainees in the *Canadian Vigour Centre Scholar Program*, and serves as co-program director. The program's main objective is to "Provide supportive mentorship, research opportunities, and a collaborative research environment for early-stage investigators in order to enhance both their research expertise and careers in CV medicine.
- 25 national and international presentations
- Promoted to Deputy Editor of *European Heart Journal: Acute Cardiovascular Care*. Serves as associate editor for the *European Heart Journal* and the *American Heart Journal* and Senior Consulting Editor for *JACC: Advances*.



Dr. Elizabeth Wilcox

The Wilcox lab has a special research interest in long-term outcomes after critical illness with a specific focus on cognition, sleep, and circadian rhythm. Dr. Wilcox's contributions supported an official American Thoracic Society (ATS) research statement on causes, consequences and treatments of sleep and circadian disruption in the ICU.

Trainee Highlights:

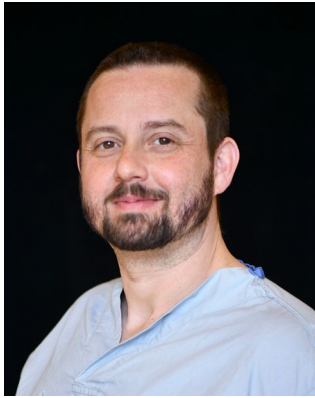
- Athina Alight (Undergraduate medical education) – won the Dr. Wu Dat Chin Scholarship in Critical Care Medicine for, “Investigation of Circadian Rhythms and Environmental Lighting Influences in Subarachnoid Haemorrhage (SAH) Management: Towards Real-Time Patient Monitoring and Intervention Optimization”
- Dr. Heather Perry (Postgraduate medical education) – has continued to work on her research program on, ‘Interventions to improve sleep and circadian rhythm in critical illness
- Dr. Aadil Bharwani (Postgraduate medical education) – supervisor during his PhD for his work on, “Restrictive vs. liberal fluids in specific patient populations”
- Dr. Andrea Davenport (Postgraduate medical education) – supervisor for her work on, “Neuroprognostication after cardiac death.” This was published in CHEST Critical Care.

Select Collaboration Highlights:

- REVISE - aims to determine the impact of the proton pump inhibitor pantoprazole compared with placebo on clinically important upper gastrointestinal (GI) bleeding in the intensive care unit (ICU), 90-day mortality and other endpoints in critically ill adults. The Wilcox lab participated in patient recruit for this international, randomised, concealed, stratified, blinded parallel-group individual patient trial being conducted in ICUs in Canada, Australia, Saudi Arabia, UK, US, Kuwait, Pakistan and Brazil, in addition to participating in related methodology projects
- SEPSIS CANADA - Little is known about the numbers and distribution (i.e., epidemiology) of sepsis, a life-threatening condition that is the 12th leading cause of death in Canada. Changing definitions and challenges in its recognition by healthcare professionals have hindered our understanding of the epidemiology of sepsis. The Wilcox lab will summarize the available literature on the epidemiology of sepsis and have that summary available online/accessible to patients, family members, healthcare professionals, researchers, and policymakers. <https://www.sepsiscanada.ca/research/research-projects/projects-list/~1224-Project-Scoping-Review-and-Cataloguing-of-Existing-Knowledge-About-the-Epidemiology-of-Sepsis>

Select Publication Highlights:

- **Wilcox ME**, Burry L, Englesakis M, Coman B, Daou M, van Haren FM, Ely EW, Bosma KJ, Knauert MP. Intensive care unit interventions to promote sleep and circadian biology in reducing incident delirium: a scoping review. *Thorax*. 2024 Feb 13: thorax-2023-220036. doi: 10.1136/thorax-2023-220036.
- Bowman EML, Brummel NE, Caplan GA, Cunningham C, Evered LA, Fiest KM, Girard TD, Jackson TA, LaHue SC, Lindroth HL, Maclullich AMJ, McAuley DF, Oh ES, Oldham MA, Page VJ, Pandharipande PP, Potter KM, Sinha P, Slooter AJC, Sweeney AM, Tiegels Z, Van Dellen E, **Wilcox ME**, Zetterberg H, Cunningham EL. Advancing specificity in delirium: The delirium subtyping initiative. *Alzheimers Dement*. 2024 Jan;20(1):183-194. doi: 10.1002/alz.13419.
- Knauert MP, Ayas NT, Bosma KJ, Drouot X, Heavner MS, Owens RL, Watson PL, **Wilcox ME**, Anderson BJ, Cordoza ML, Devlin JW, Elliott R, Gehlbach BK, Girard TD, Kamdar BB, Korwin AS, Luszczek ER, Parthasarathy S, Spies C, Sunderram J, Telias I, Weinhouse GL, Zee PC. Causes, Consequences, and Treatments of Sleep and Circadian Disruption in the ICU: An Official American Thoracic Society Research Statement. *Am J Respir Crit Care Med*. 2023 Apr 1;207(7):e49-e68. doi: 10.1164/rccm.202301-0184ST.
- Cook DJ, Deane A, Dionne JC, Lauzier F, Marshall JC, Arabi Y, **Wilcox ME**, Ostermann M, Al-Fares A, Heels-Ansdell D, Zytaruk N, Thabane L, Finfer S for the REVISE Investigators and the Canadian Critical Care Trials Group. Adjudication of a Primary Trial Outcome: Results of a Calibration Exercise and Protocol for a Large International Trial. *Contemp Clin Trials Commun*. 2024 Mar 5;39:101284. doi: 10.1016/j.conctc.2024.101284. eCollection 2024 Jun.



Dr. Fernando Zampieri

Dr. Fernando Godinho Zampieri is a new recruit to the Department, starting in March 2023. His previous experience includes design and conduction of large randomized controlled trials in Brazil as well as development and validation of novel statistical methods, with emphasis on Bayesian methods and analysis of individualized treatment effects. Dr. Zampieri has an h-index of 45 and a i-10 index of 88, with over 9,900 citations.

Trainee Highlights:

- [Ana Ramirez](#) (Undergraduate medical education) - currently performing a scoping review on the potential effects of metamizole as a non-opioid analgesic for critically ill patients.
- [Robert Pap](#) (Undergraduate medical education) - currently performing a scoping review on the effects of milrinone on symptomatic vasospasm after subarachnoid hemorrhage. This project was funded by a summer scholarship program.

Select Study Highlights:

- [BEST-Living](#) - Completed the largest individual patient metanalysis on the role of balanced solutions in critically ill patients.
- [DEFENDER](#) – completed and published the first trial assessing the role of SGLT2i in critical illness. Invited to Belfast to present these results for the first time at Critical Care Reviews 2024.

Select Collaboration Highlights:

- [European Guidelines on Acute Respiratory Distress Syndrome, published in Intensive Care Medicine](#) – Participated as a collaborator with the European Society of Intensive Care Medicine Taskforce on ARDS. These guidelines were published in *Intensive Care Medicine*.
- [European Guideline on Fluid therapy for critically ill patients, published in Intensive Care Medicine](#) – Participated as a collaborator with the European Society of Intensive Care Medicine Clinical Practice Guidelines on Fluid Therapy. These were published in *Intensive Care Medicine*.
- [Scandinavian Rapid Practice Guidelines on Oxygenation Goals for Critical Ill Patients](#) – Participated as a collaborator for these rapid practice guidelines. These were published in *Acta Anaesthesiology Scandinavia*.

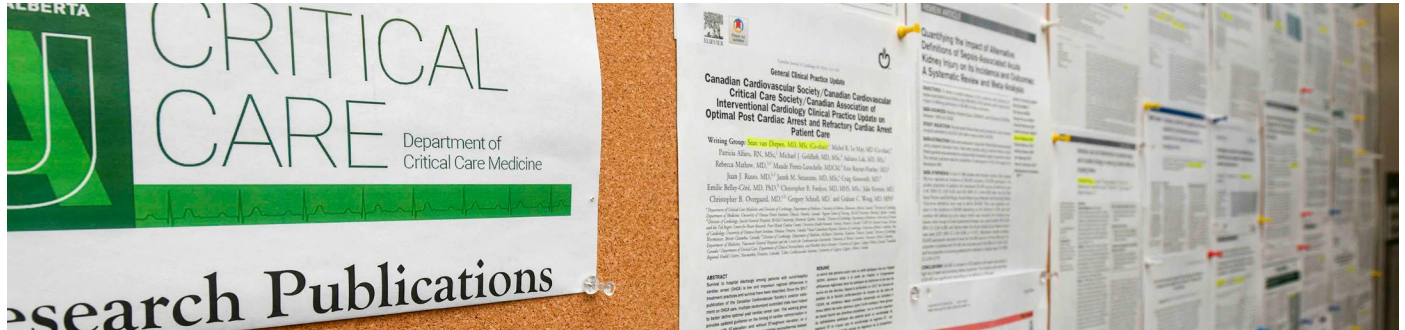
Select Publication Highlights:

- Tavares CAM, Azevedo LCP, Rea-Neto Á, Campos NS, Amendola CP, Kozesinski-Nakatani AC, David-João PG, Lobo SM, Filiponi TC, Almeida GMB, Bergo RR, Guimarães-Júnior MRR, Figueiredo RC, Castro JR, Schuler CJ, Westphal GA, Carioca ACR, Monfradini F, Nieri J, Neves FMO, Paulo JA, Albuquerque CSN, Silva MCR, Kosiborod MN, Pereira AJ, Damiani LP, Corrêa TD, Serpa-Neto A, Berwanger O, **Zampieri FG**; DEFENDER Investigators. Dapagliflozin for Critically Ill Patients With Acute Organ Dysfunction: The DEFENDER Randomized Clinical Trial. *JAMA*. 2024 Jun 14. doi: 10.1001/jama.2024.10510. Epub ahead of print. PMID: 38873723.
- **Zampieri FG**, Cavalcanti AB, Di Tanna GL, Damiani LP, Hammond NE, Machado FR, Micallef S, Myburgh J, Ramanan M, Venkatesh B, Rice TW, Semler MW, Young PJ, Finfer S. Balanced crystalloids versus saline for critically ill patients (BEST-Living): a systematic review and individual patient data meta-analysis. *Lancet Respir Med*. 2024 Mar;12(3):237-246. doi: 10.1016/S2213-2600(23)00417-4. Epub 2023 Nov 30. PMID: 38043564.
- **Zampieri FG**, Machado FR, Veiga VC, Azevedo LCP, Bagshaw SM, Damiani LP, Cavalcanti AB. Determinants of fluid use and the association between volume of fluid used and effect of balanced solutions on mortality in critically ill patients: a secondary analysis of the BaSICS trial. *Intensive Care Med*. 2024 Jan;50(1):79-89. doi: 10.1007/s00134-023-07264-9. Epub 2023 Nov 27. Erratum in: *Intensive Care Med*. 2024 Jan;50(1):157. doi: 10.1007/s00134-023-07299-y. PMID: 38010383.

Notable Achievements:

- Paper of the Year winner at the Department of Critical Care Medicine at University of Alberta 2023/24 for the BEST-Living systematic review
- Speaker at the 43rd International Symposium on Intensive Care and Emergency Medicine (ISICEM) in Brussels, 2024
- Member of the round table on artificial intelligence for critical care medicine at ISICEM 2024.
- Speaker and Editoralist (Faculty) on Critical Care Reviews conference in Belfast, 2024.

Research Publications



169

total publications

34

publications with
department faculty as
first or senior author

3

publication with
trainee as first author

68

publications in high
impact journals

Full list of research publications can be found in the Appendix on page 98

Featured Publication



The NEW ENGLAND
JOURNAL of MEDICINE

Stress Ulcer Prophylaxis during Invasive Mechanical Ventilation

Cook D, Deane A, Lauzier F, Zytaruk N, Guyatt G, Saunders L, Hardie M, Heels-Ansdell D, Alhazzani W, Marshall J, Muscedere J, Myburgh J, English S, Arabi YM, Ostermann M, Knowles S, Hammond N, Byrne KM, Chapman M, Venkatesh B, Young P, Rajbhandari D, Poole A, Al-Fares A, Reis G, Johnson D, Iqbal M, Hall R, Meade M, Hand L, Duan E, Clarke F, Dionne JC, Tsang JLY, Rochweg B, Karachi T, Lamontagne F, D'Aragnon F, St Arnaud C, Reeve B, Geagea A, Niven D, Vazquez-Grande G, Zarychanski R, Ovakim D, Wood G, Burns KEA, Goffi A, **Wilcox ME**, Henderson W, Forrest D, Fowler R, Adhikari NKJ, Ball I, Mele T, Binnie A, Trop S, Mehta S, Morgan I, Loubani O, Vanstone M, Fiest K, Charbonney E, Cavayas YA, Archambault P, **Rewa OG**, **Lau V**, Kristof AS, Khwaja K, Williamson D, Kanji S, Sy E, Dennis B, Reynolds S, Marquis F, Lellouche F, Rahman A, Hosek P, Barletta JF, Cirrone R, Tutschka M, Xie F, Billot L, Thabane L, Finfer S; **REVISE Investigators**. **Stress Ulcer Prophylaxis during Invasive Mechanical Ventilation**. *N Engl J Med*. 2024 Jul 4;391(1):9-20. doi: 10.1056/NEJMoa2404245. Epub 2024 Jun14. PMID: 38875111

Research Grants

\$8,225,572



Full list of research grants can be found
in the Appendix on page 120

Featured Faculty Research Grant

Investigator: Dr. Jim Kutsogiannis

Title: CIHR - BRAINapt: TBI International Adaptive Platform Trial

Funder: Canadian Institutes of Health Research (CIHR)

Funding Year: 2023 - 2028

Award: \$4,846,275.00

Featured Trainee Research Grant

Investigator: Dr. Josh Butcher (Trainee) / Dr. Sean Bagshaw (Supervisor)

Title: Retrospective Cohort Study on the Incidence and Outcomes of Critical Illness
Among the Métis Population in Alberta.

Funder: Canadian Critical Care Trials Group - Network of Networks

Funding Year: 2023 - 2028

Award: \$25,000.00

Visiting Speakers



The R.T. Noel Gibney Lecture in Critical Care Medicine

Dr. Rob Fowler, MDCM, MS(Epi), FRCP(C)

Critical Care sans Frontières/Critical Care without Borders | March 19, 2024

Rob Fowler is critical care physician and H. Barrie Fairley Professor of Medicine at the University of Toronto, Chief of the Trauma-Critical Care Program at Sunnybrook Health Sciences Centre. He is a past Director for the Dalla Lana School of Public Health's Institute of Health Policy, Management and Evaluation Clinical Epidemiology Graduate Training Program and immediate past Chair of the Canadian Critical Care Trials Group.

Rob's clinical and academic focus includes access and outcomes of care for critically ill patients and infection-related critical illness. Rob is the lead for the Canadian Institutes of Health Research - funded COVID-19 Network of Clinical Trials Networks, co-principal investigator of the Canadian Treatments for COVID-19 (CATCO) Trial and the international multicentre Bacteremia Antibiotic Length Actually Needed for Clinical Effectiveness (BALANCE) Trial. He has assisted or worked with the World Health Organization during SARS, pandemic and avian influenza, Middle East Respiratory Syndrome, Ebola outbreaks in Guinea, Liberia, Sierra Leone, and the Democratic Republic of the Congo.



2024 Research Day Keynote Speaker

Dr. Jennifer Tsang

Building Capacity for Research in Community Hospitals – RICH-Canada Program | May 15, 2024

Dr. Tsang received her internal and critical care medicine training and her PhD at the University of Toronto. She is an intensivist and founder of the Critical Care Research Program at Niagara Health. She secured funding for the establishment of the Niagara Health Knowledge Institute in 2023 and is its inaugural Executive Director and Chief Scientist. She is the Regional Deputy Research Director of the Internal Medicine Residency Program and an Associate Professor of Medicine at McMaster University. She is Co-Founder and Co-Chair of the Canadian Community ICU Research Network.

She is a member of the Ontario Hospital Association's Hospital-Sector Research Working Group and a member of the Royal College of Physicians and Surgeons of Canada's Research and Evaluation Advisory Committee. Her academic focus is on building capacity for research in community hospitals. She also serves as the Co-Chair of the Board of Directors of Quest Community Health Centre.

Visiting Speaker Series



Dr Forbes McGain OAM MBBS, FANZCA, FCICM, PGDipObs, PGDipPeriopEcho, PhD.

The ICU: Can the Pinnacle of Healthcare Waste be the Lighthouse of Low Carbon? | June 4, 2024

Forbes McGain is the Director of the Footscray Hospital ICU, and an anaesthetist and intensive care physician at Western Health, Melbourne. Forbes is also Associate Dean of Sustainable

VP Grand Rounds

Dr. Teneille Gofton MD MSc FRCPC

Associate Professor, Department of Clinical Neurological Sciences and Critical Care Western, Schulich



Neurophysiology and organ donation | September 12, 2023

Dr. Julie Kromm BMSc MD FRCPC

*Clinical Associate Professor, University of Calgary
Departments of Critical Care Medicine & Clinical Neurosciences*



**UNIVERSITY OF
CALGARY**

Post-arrest prognostication: A scientific art | November 14, 2023

Dr. Shaurya Taran MD, FRCPC

Clinical Associate, Toronto Western Hospital



Ventilation and Extubation Decisions in Patients with Acute Brain Injury: What Does the Evidence Tell Us? | April 9, 2024

EDUCATION



Message from the program director

The Critical Care Medicine program at the University of Alberta is a highly regarded subspecialty training program offering unrivaled breadth of exposure and training experiences along with unmatched educational financial support for our trainees.



Dr. Adam Romanovsky

Director, Education

Assistant Clinical Professor, Department of Critical Care Medicine

Residents see the full spectrum of critical illness as they rotate through five local intensive care units, which include both general (University of Alberta Hospital, Royal Alexandra Hospital, Grey Nuns Community Hospital) and specialty (Cardiovascular ICU, Neurosciences ICU) critical care units.

Our three core trainees have successfully completed the program and will all remain involved with our program and in the department as they continue their careers in Edmonton. Dr. Michal Chwalek has accepted a clinical scholar position with the department while pursuing a master of medical education. Dr. Cowan and Dr. Davenport have both joined the department as clinical intensivists at the Sturgeon Community Hospital and Misericordia Community Hospital, respectively.

As our former trainees transition to the next phase of their careers, our core training program continues to grow and expand. We welcomed three new fellows into our CaRMS training positions: Dr. Sunny Fong, Anesthesiology, University of Alberta; Dr. Shannon Tang, Internal Medicine, Queen's University; and Dr. Jack Yuan, Internal Medicine, University of Alberta. We are also excited to welcome Dr. Fawaz Alshammari from Kuwait, who completed his Internal Medicine training at the University of Alberta. The program also welcomes the mid-year addition of Dr. Yiming Huang, who transferred into our program in March.

Not to be forgotten is the continued success of our fellowship programs. After a five-year hiatus, we trained our third Critical Care Cardiology fellow in three years and have already secured an additional two fellows for 2024-25 and 2025-26, respectively. We are very pleased that Dr. Evan Wiens, who completed his Critical Care Cardiology fellowship in June, will be joining the Division of Cardiology at the University of Alberta. Dr. Rabia Kashur, who graduated from the Critical Care Cardiology program in 2023, is now serving as the

associate PD for the program and will use his experience to further enhance the program. Our CVICU fellowship graduated Dr. Jonathan Gale, who has now returned to Halifax to put his new training into action, serving the population of Nova Scotia.

Our faculty were recognized for teaching both within and outside of our department. Three-quarters of our teaching faculty at our two main teaching sites (University of Alberta Hospital and Royal Alexandra Hospital) were nominated for departmental teaching awards, highlighting the broad impact of our clinician teachers. Some awards won by department members include:

- Critical Care Medicine Rotating Resident Teacher of the Year award – Dr. Kimberly Macala (selected by rotating residents and awarded to a critical care physician in recognition of outstanding contribution to resident education)
- Critical Care Medicine Senior Resident Teacher of the Year award – Dr. Janek Senaratne (selected by senior residents and awarded to a critical care physician in recognition of outstanding contribution to senior resident education)

Graduating Residents

Drs. Chwalek, Cowan and Davenport at the department annual year end celebration June 2024.



Postgraduate Medical Education

In November 2025, the College of Family Physicians and Royal College of Physicians and Surgeons will conduct accreditation reviews of all our active residency and Area of Focused Competence programs, as well as our PGME enterprise. Preparation for this began in 2020 as PGME began to conduct internal reviews of all of our training programs to help them find ways to improve and continue areas in which they were doing well. Over the next 17 months, we will ramp up our preparation.

Almost all of our Royal College residency programs have implemented the educational paradigm known as Competence by Design. Nationally, efforts are underway to take what has been learned from the implementation so far and use this to inform future improvements.

Lawrence Cheung, MD, FRCPC

Associate Dean, **Postgraduate Medical Education**
Professor, Departments of Medicine and Critical Care Medicine



2023-24 Education Leadership

Adult Critical Care Residency Program

Dr. Adam Romanovsky - Program Director

Critical Care Cardiology Clinical Fellowship

Dr. Janek Senaratne – Fellowship Director

Critical Ultrasound (CCUS) Clinical Fellowship

Dr. Brian Buchanan - Fellowship Director

Critical Care Cardiovascular Intensive Care (CVICU) Fellowship

Dr. Aws Alherbish - Fellowship Director

Critical Care Neuroscience Intensive Care Unit (Neuro-ICU) Fellowship

Dr. Monica Henry - Fellowship Director

2023-24 Education Events

Academic Half Day: covering 60 topics over the course of the academic year

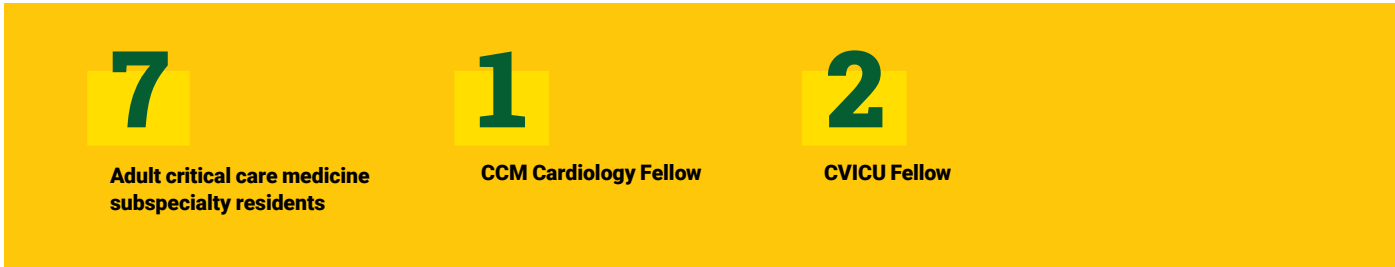
Simulations: 6 (July 12, July 19, Sep 6, Nov 15, Feb 7, May 8)

Ventilation Full Day: December 6, 2023

Other Activities:

- CCM Year 1 Orientation – June 30, 2023
- N-ACES Course – July 6 – 7, 2023
- BLS / ACLS Courses – July 29, 2023
- CaRMS - September 13, 2023
- TEE for Acutely Ill Patients – September 20, 2023
- CRUS-West (Canadian Resuscitative Ultrasound) Course – September 21 – 22, 2023
- Canadian Critical Care Forum (CCCF): Nov 28 – Dec 1, 2023
- ASICP: January 19-20, 2024
- Journal Club - September 5, December 5, February 6, May 7
- In Training Exams: December 13 and May 22
- Resident Wellness Days – September 27, March 6
- OSCE (Objective Structured Clinical Examination) – May 29, 2024
- Research Day – May 14, 2025
- Royal College of Physicians and Surgeons Critical Care Medicine Exam - Sep 19-20, 2023

Education Program Details



CaRMS: September 13, 2023



CaRMS on zoom



Fellowship Profiles



CCM Cardiovascular Intensive Care

Jon Gale

Originally from Halifax, Nova Scotia, Jon Gale completed residencies in internal and critical medicine at Dalhousie University before completing a 1 year CVICU fellowship at the Mazankowski Heart Institute of Alberta/University of Alberta. He is now practicing as a staff intensivist and internist back home at Dalhousie University in Halifax. His main clinical interests include ECLS and the care of post-cardiac surgery patients.



CCM Cardiovascular Intensive Care

Matthew Schroyens

Matthew Schroyens is a Cardiologist-Intensivist from Belgium. As part of his Critical Care training, he undertook a nine-month elective at the University of Alberta Hospital. Afterwards, he completed the Cardiovascular Intensive Care Clinical Fellowship at the University of Alberta. During his fellowships, he completed the Postgraduate Course in Heart Failure Management in the United Kingdom. His main clinical interest lies in the care of critically ill cardiac and cardiosurgical patients. Currently, he practices as a Cardiologist-Intensivist in the AZ Rivierenland hospital in Belgium.



CCM Cardiology

Evan Wiens

Dr. Evan Wiens successfully completed a Critical Care Cardiology Fellowship from July 1, 2023 until June 30, 2024 in the Department of Critical Care Medicine at the University of Alberta. We are very pleased that Dr. Wiens has since joined the Faculty at the University of Alberta starting July 1, 2024 as a Cardiac Intensivist at the Mazankowski Alberta Heart Institute as well as a Nuclear Cardiologist.

A stylized blue ultrasound waveform graphic with a grid background, featuring a central horizontal line with a jagged, oscillating pattern and a larger, smoother wave above it.

CRITICAL CARE ULTRASOUND

A light blue background with a faint, geometric pattern of intersecting lines forming a grid of squares and diamonds.

Message from the Director

Critical Care Ultrasound (CCUS) is ultrasound at the bedside of a critically ill patient performed and interpreted by an advanced practitioner.



Dr. Brian Buchanan

Director, Critical Care Ultrasound

Associate Professor, Department of Critical Care Medicine

CCUS plays a foundational role in detecting and managing a variety of life-threatening illnesses, from shock to respiratory failure. CCUS has become a fundamental skill within the specialty of critical care and dedicated interest in CCUS education and research has offered exciting new venues of study and professional growth.

In the next couple of years, we will work to professionalize CCUS within Alberta in the greater critical care community. By increasing our standards in CCUS, we will foster greater recognition, higher standards and increased credibility as we look to routinely bring our images and reports into the official electronic health record.

Education

2023-2024 was a busy academic year for the CCUS portfolio. This year saw the education of 14 rotators through the CCUS rotation and continuation of the monthly ABSono Ultrasound rounds. In addition to educational endeavours, we continue to participate in the provincial AHS-supported Medical Imaging Advisory Council, which is seeking to bring point-of-care-based ultrasound imaging into the official medical record. In addition, much work has been done with the Medicine SCN in developing best practice recommendations in point-of-care ultrasound (POCUS). Both projects will bring about substantive change to the performance and interpretation of critical care and POCUS.

In addition to our local work, we continue to build bridges nationally and internationally. We established our first connection with Medecins Sans Frontieres (MSF) in designing and piloting a remote ultrasound program to help teach Ukrainian intensive care doctors how to perform advanced CCUS. Dr. Andrea Robinson took on a role as a clinician-educator in the field in Ukraine and played a key role in delivery of this program. Finally, this was the first time ABSono played a key role in the development of CCUS training programs in both Australia and New Zealand, a partnership that will continue into 2025.

Research

In 2023-24, we saw several publications emerge from our years of work in CCUS. In one trial, we saw the impact of multi-organ assessment for venous congestion in the prediction of acute kidney injury (<https://pubmed.ncbi.nlm.nih.gov/38481488/>). In another, we saw how a machine learning algorithm can be used to assess lung sliding in ultrasound (<https://pubmed.ncbi.nlm.nih.gov/38893608/>). We also published a review paper challenging the status quo regarding whether it is appropriate to continue post line insertion chest X-rays (<https://pubmed.ncbi.nlm.nih.gov/38737308/>). Finally, we continue to see the evolution of trans-esophageal echocardiography in clinical practice and as we enrol patients in an international registry study. Two abstracts were presented and published from this study in November 2023, that explored the impact of deep learning to detect chest compression location and the development and implementation of the registry itself.

CRUS West Resuscitative Ultrasound

In the fall of 2023, we continued to deliver innovative education in ultrasound through the Canadian Resuscitative Ultrasound Course (CRUS) West on September 21-22. We welcomed 15 faculty and 40 participants (20 faculty, 20 residents) to Western Canada's biggest course in acute care ultrasound training. The course again received outstanding reviews and will be held again this year August 15-16, 2024.

We also held, for the first time, a one-day workshop in resuscitative TEE on September 20, 2023 in partnership with the TEE Resuscitative Academy. This course was a resounding success and received very favorable reviews.





SIMULATION



Message from the Director

In conjunction with the Faculty of Medicine & Dentistry, University of Alberta, Alberta Health Services and Covenant Health, this department runs an interdisciplinary, interprofessional and interhospital simulation program.



Dr. Janek Senaratne

Director, Simulation, Department of Critical Care Medicine
Associate Professor, Departments of Critical Care Medicine and Medicine

The simulation program is an integral part of the department's clinical, educational, research and quality improvement/assurance missions.

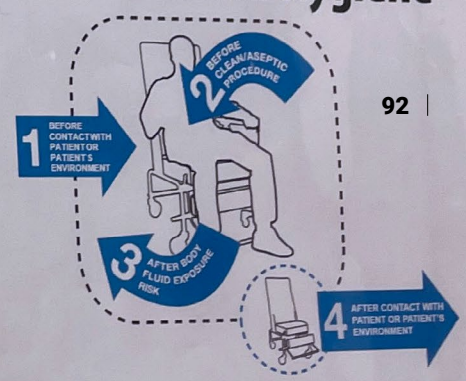
In the clinical sphere, simulation's penetration continues to increase throughout the zone and within multiple units. Using the model that was first introduced at the U of A's general systems intensive care unit as well as Mazankowski Alberta Heart Institute's cardiac intensive care unit, full team in-situ simulation is increasing in all the units and integrates the spectrum of all members of the clinical team including attending physicians, nurse practitioners, residents, nurses, respiratory therapists and pharmacists. The program has now expanded to include simulations for the ExtraCorporeal Life Support (ECLS) Program as well as transport simulations to ancillary areas of the hospital such as diagnostic imaging and interventional radiology. Our medium-term goal is to find and support simulation leaders in each of the major units across the city in order to equalize the simulation curriculum around the city.

In the medical education sphere, Dr. Graham Mah and Dr. Lazar Milovanovic have taken on the roles of medical student simulation leads. This has culminated in the department now annually supporting simulation for the first- and second-year medical students as part of the Critical Care and Trauma Medical Student's Club, as well as the third-year medical students as part of their link block. This has led to early exposure of the whole of the U of A's medical school class to faculty from the department, which has been very well received and which will remain a key partnership with the Faculty of Medicine & Dentistry and Undergraduate Medical Education. For junior residents, Dr. Jocelyn Slemko is the co-director for the Internal Medicine Simulation Program, which provides theatre-based simulation for the Department of Medicine's Core Internal Medicine Residency Program. A new initiative is also underway to provide regular simulation each block for rotating junior residents at the University of Alberta's general systems intensive care unit as well as Royal Alexandra Hospital's intensive care unit, placing critical care medicine senior residents in a simulation teaching role during their own rotations. This initiative

will provide ancillary exposure to both procedures and emergency events for rotating junior residents to supplement their clinical exposure during their ICU rotations. For the critical care medicine senior residents as well as fellows, the simulation curriculum – including task-trainer simulations, bootcamps and regular full-team in-situ simulations – remains mature and nationally/globally recognized as a strength of our Critical Care Medicine Residency Program. A new longitudinal lecture- and simulation-based mechanical ventilation curriculum as well as a new biennial full-day hemodynamics bootcamp day will continue to further enhance the current curriculum based on feedback from the residency program.

27	28
29	30
31	


Ministry of Health and Family Welfare
Services
 Continuous Improvement
 UAH-MAZ-OK-HAJ-KEC-AKON



PRESSURE INJURY SAFETY CROSS

MONTH: SEPTEMBER YEAR: 2024
 UNIT/CLINIC: GSICU

		1		2
		3		4
		5		6
				9
				10
				11
				12

1	BEFORE contact with patient/patient's environment	Why? To protect the patient against harmful germs carried on your hands Example: Before providing patient care
2	BEFORE clean/aseptic procedure	Why? To protect the patient against harmful germs from entering their body Example: Before donning personal protective equipment or collecting a specimen
3	AFTER body fluid exposure risk	Why? To protect yourself and the health care environment from harmful germs Example: After doffing personal protective equipment or handling a specimen
		Why? To protect yourself and the health care environment from harmful germs

SAFETY AND QUALITY

Message from the Director

This year has been a busy and productive year for the department, with the numerous quality and safety initiatives taking place within Edmonton Zone (EZ).



Dr. Sandy Widder

Director, Safety and Quality
Associate Professor, Departments of Critical Care
Medicine and Surgery

We were able to successfully have all our quality councils up and running, including the introduction of new quality councils for those units that did not have one previously. This has allowed us to focus on standardization of zonal quality initiatives and to promote collaboration across sites for rollout of new zonal quality initiatives. We also created the EZ CCM quality council to not only share learnings and successes but also enhance the use of data and measures to drive our quality and safety initiatives. We are fortunate in the department of to not only have individuals who have a passion for quality improvement, but most of the members who sit on the departmental quality council have formal training in quality improvement and/or safety. Special thanks to: Dr. Arabesque Parker (RAH), Dr. Andrea Letourneau (MCH), Dr. Jocelyn Slemko (SCH), Dr. Leon Byker (GNH), Dr. Warren Luksun and Dr. Roman Nepomuceno (CVICU) and Dr. Nori Bradley (Neuro ICU) for their contributions throughout the year.

All the quality councils have also been working on unit-specific initiatives to drive quality and safety work forward and ultimately improve patient outcomes.

At the RAH:

- preventing exposure keratopathy in the ICU
- improving the safety of ICU transfers
- formalizing patient safety event reviews.

At the UAH:

- a human factors safety review of rounds disruptions
- improving the flow and efficiency of nighttime rounds
- initiation of our end-of-life care working group

At the MCH ICU:

- reviewing the rapid response process with a quality-safety lens
- removal of chlorhexidine mouth care and successful implementation of the use of an oral care bundle
- process improvement work on assessing the need and use of unit supplies

At the SCH ICU:

- a human factors assessment and safety project to minimize distractions during bedside procedures and mitigate harm
- implementation of a nurse-led post-extubation dysphagia screening tool and pathway
- utilization tracking of the medical emergency team

At the Neuro ICU:

- standardized the use of procedural equipment with the creation of bundles and carts
- successfully implemented the oral care bundle and de-adoption of chlorhexidine mouth care
- developed the use of a two-step nasogastric tube insertion to minimize complications and adverse events

At the CVICU:

- optimization of the Fast Track/Enhanced Recovery After Surgery pathway
- the reduction of central line associated bloodstream infections)
- reinvigoration of multidisciplinary patient safety rounds

Additional quality and safety work that should be celebrated includes the successful rollout of zonal and provincial quality projects, sponsored by the Critical Care Strategic Clinical Network™ and led by members within the EZ. ROSA led to improvements in the use of infusions as well as a decrease in ventilation days. The creation of a formal ROSA dashboard will lead to ongoing improvements and sustainability work for the zone and hopefully (in the future) the province. Dialyzing Wisely (Dr. Oleksa Rewa) is a provincial quality initiative that aims to improve the quality of acute dialysis, including appropriateness of use and alignment with current evidence-based best practices. Other quality and safety work in collaboration with the CC SCN™ includes Venting Wisely and Don't Misuse My Blood.

Future initiatives include:

- optimization of standard work, including use of standardized unit report cards
- creation of innovative and novel care pathways
- regular use of up-to-date quality dashboards and indicators to support the EZ CCM quality-safety work
- collaborations within the EZ CCM and beyond

CRITICAL CARE COMMUTE

Critical Care Commute



Dr. Leon Byker and Dr. Peter Brindley continue to host and grow the **Critical Care Commute** podcast. In just over a year, they have received approximately 30,000 cumulative downloads from dozens of countries, and have released approximately 50 episodes. It has resulted in increased traffic through the department's website and increased exposure for faculty members. Given approximately 500 downloads per episode, Peter and Leon would (perhaps immodestly) argue that it is one of the Faculty's largest educational outputs and audiences. Highlights include numerous high-profile world famous guests (prominent journal editors, recipients of knighthoods galore). The podcast has also been invited to serve as an official podcaster for several of the world's largest critical care medicine conferences and expansion to include overseas correspondents. Thank you for your ears and feedback; it's been an exciting journey and the sky's the limit.



Dr. Peter Brindley
Professor, Department of
Critical Care Medicine



Dr. Leon Byker
Assistant Clinical Professor,
Department of Critical Care Medicine

APPENDIX



Research Publications



34

publications with
department faculty as
first or senior author



3

publication with
trainee as first author



68

publications in high
impact journals

1. Grasselli G, Calfee CS, Camporota L, Poole D, Amato MBP, Antonelli M, Arabi YM, Baroncelli F, Beitler JR, Bellani G, Bellingan G, Blackwood B, Bos LDJ, Brochard L, Brodie D, Burns KEA, Combes A, D'Arrigo S, De Backer D, Demoule A, Einav S, Fan E, Ferguson ND, Frat JP, Gattinoni L, Guérin C, Herridge MS, Hodgson C, Hough CL, Jaber S, Juffermans NP, Karagiannidis C, Kesecioglu J, Kwizera A, Laffey JG, Mancebo J, Matthay MA, McAuley DF, Mercat A, Meyer NJ, Moss M, Munshi L, Myatra SN, Ng Gong M, Papazian L, Patel BK, Pellegrini M, Perner A, Pesenti A, Piquilloud L, Qiu H, Ranieri MV, Riviello E, Slutsky AS, Stapleton RD, Summers C, Thompson TB, Valente Barbas CS, Villar J, Ware LB, Weiss B, **Zampieri FG**, Azoulay E, Cecconi M; European Society of Intensive Care Medicine Taskforce on ARDS. ESICM guidelines on acute respiratory distress syndrome: definition, phenotyping and respiratory support strategies. *Intensive Care Med.* 2023 Jul;49(7):727-759. doi: 10.1007/s00134-023-07050-7. Epub 2023 Jun 16. PMID: 37326646; PMCID: PMC10354163.
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4. Stanski NL, Rodrigues CE, Strader M, Murray PT, Endre ZH, **Bagshaw SM**. Precision management of acute kidney injury in the intensive care unit: current state of the art. *Intensive Care Med*. 2023 Sep;49(9):1049-1061. doi: 10.1007/s00134-023-07171-z. Epub 2023 Aug 8. PMID: 37552332.
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Member Authored Book Chapters

1. **Bagshaw SM**, Wald R. Nutrition, Metabolism and Kidney Support: A Critical Care Approach. Edited by Cotoia A, De Rosa S, Ferrari F, Pota V and Umbrello M. Part V – Renal Replacement Therapy. Chapter 5: Indications and Timing of Renal Replacement Therapy. Berlin: Springer Nature; 2024.
2. *Jeong R, *Fidalgo P, **Bagshaw SM**. Management of Chronic Kidney Disease: A Clinician's Guide. Edited Arici M. Chapter 34: Chronic Kidney Disease in the Intensive Care Unit. Berlin: Springer Nature; 2023 (ISBN: 978-3-031-42044-3).
3. *Habeeb Z, Wald R, **Bagshaw SM**. AKI and RRT in the ICU. Edited by Forni L, Joannidis M, See E. and Zarbock A. Part III: Treatment Options and Therapeutic Goals. Chapter 30: Timing of Renal Replacement Therapy - When to Start. Berlin. Springer Nature; 2024.
4. Silver SA, **Bagshaw SM**, **Rewa OG**, Wald R. AKI and RRT in the ICU. Edited by Forni L, Joannidis M, See E. and Zarbock A. Part III: Treatment Options and Therapeutic Goals. Chapter 31: Timing of Renal Replacement Therapy - When to Stop. Berlin. Springer Nature; 2024.
5. Pacheco G. Lauria M. **Brindley PG**. Organizational Factors in Difficult Airway Management of the Critically Ill. In Manual of Critical Care Airway Management Mosier JM. McGraw Hill. Publication Pending. 2024/6.
6. Mosier J. Lauria M. **Brindley PG**. Human Factors and Difficult Airway management Management. In Manual of Critical Care Airway Management Mosier JM. McGraw Hill. Publication Pending. 2024/6.
7. **Brindley P.G**. Improving Teamwork and Communication in Trauma. In: L Gillman, S Widder, M Blaivas D Karakitosis Eds; 2nd edition Trauma Team Dynamics. Springer Press. Publication pending 2024/6
8. **Brindley PG, Slemko J**. Situational Awareness and Human Performance in Trauma. In: L Gillman, S, Widder, M Blaivas D Karakitosis Eds; Trauma Team Dynamics. Springer Press. Publication pending 2024/6
9. Paton-Gay JD, Gillman LM, **Brindley PG**. Designing Simulation Scenarios for Trauma. In: L Gillman, S, Widder, M Blaivas D Karakitosis Eds; Trauma Team Dynamics. Springer Press. Publication pending 2024/6.
10. **Brindley PG**, Mosier J. Management of the Difficult and Failed Airway in the Intensive Care Unit. In Hung, O and Murphy MF. Management of the Difficult and Failed Airway, Fourth Edition. McGraw Hill. Publication October 2023.
11. **Brindley PG, Slemko J**. Human Factors and the Difficult Airway In Hung, O and Murphy MF. Management of the Difficult and Failed Airway, Fourth Edition. McGraw Hill. Publication October 2023.

* denotes a trainee

Department Grants

Department Grants 2023-2024

PI OR CO-PI	DESCRIPTION	AWARDS		FUNDS AVAILABLE BEFORE COMMITMENTS	SPONSOR
		START DATE	END DATE		
Bagshaw, Sean	Critical Illness Among Métis People	4/1/2024	3/31/2025	\$25,000.00	CCCTG/Network of Network Grant
Bagshaw, Sean	Anti-Indigenous Bias Among ICU Healthcare workers.\	4/1/2024	3/31/2025	\$15,000.00	Critical Care Strategic Clinical Network (Seed) Grant
Bagshaw, Sean	ALTER-AKI (Albumin to prevent intra-dialytic hypotension during IHD)	3/1/2024	2/28/2027	\$956,249.00	CIHR Project Grant
Bagshaw, Sean	WISDOM trial - for integration of EHR order, reporting and data for the trial	5/1/2024	4/30/2025	\$18,000.00	Accelerated Clinical Trials (ACT) Network
Bagshaw, Sean	AKI-EPI-2	6/1/2024	5/31/2028	\$444,870.00	Baxter Investigator Initiated Grant program
Kutsogiannis, Demetrios	CIHR - Establishing An International Core Outcome Set for Subarachnoid Hemorrhage (SAH) - What and How to Measure	03 2024	03 2024	\$726,752.00	CIHR - Ottawa Hospital Research Institute
Kutsogiannis, Demetrios/ Mahmoud, Sherif	CIHR - Nimodipine Systemic Exposure and Outcomes Following Aneurysmal Subarachnoid Hemorrhage: A Prospective Multicenter Observational Study (ASH-II Study)	03 2024	03 2029	\$722,926.00	CIHR - University of Alberta
Kutsogiannis, Demetrios	CIHR - BRAINapt: TBI International Adaptive Platform Trial	09 2023	03 2028	\$4,846,275.00	CIHR - Université Laval
Kutsogiannis, Demetrios	Appreciation of Humanity, Empathy and Compassion among Critical Care Physicians - A Mixed	1/1/2024	1/1/2026	\$65,500.00	PSI Foundation - Kingston HSC
Kutsogiannis, Demetrios	REMAP-CAP: A Randomised, Embedded,	4/4/2024	4/4/2026	\$40,000.00	Royal Alexandra Hospital; RAH Foundation

Department Grants 2023-2024

PI OR CO-PI	DESCRIPTION	AWARDS		FUNDS AVAILABLE BEFORE COMMITMENTS	SPONSOR
		START DATE	END DATE		
Kutsogiannis, Demetrios	Canadian Critical Trials Group-Portfolio Studies Research Support	3/3/2024	3/3/2025	\$35,000.00	Canadian Critical Trials Group - Royal Alexandra Hospital
Kutsogiannis, Demetrios/ Mahmoud, Sherif	CIHR - Nimodipine Systemic Exposure and Outcomes Following Aneurysmal Subarachnoid Hemorrhage: A Prospective Multicenter Observational Study (ASH-II Study)	1/9/2024	1/9/2025	\$100,000.00	CIHR - University of Alberta
Rewa, Oleksa	The Canadian Network of COVID-19 Clinical Trials Networks	7/1/2023	3/31/2024	\$70,000.00	Sunnybrook Research Institute
Senaratne, Janek	The Canadian Network of COVID-19 Clinical Trials Networks	7/1/2023	3/31/2024	\$35,000.00	Sunnybrook Research Institute
vanDiepen, Sean	De-Adoption of β -Blockers in patients with stable ischemic heart disease without REduced LV ejection fraction, ongoing Ischemia, or Arrhythmias: a pragmaTic randomizEd trial (The A β BREVIATE Trial)	11/1/2023	10/31/2025	\$125,000.00	Kay Foundation

Department Members

New appointments



Sarah Andersen **Assistant Professor**

Dr. Andersen completed her clinical training in Internal Medicine (University of Toronto) and Adult Critical Care Medicine (University of Alberta) in 2020, followed by an NIH-funded postdoctoral research fellowship and a Masters of Science in Clinical Research (Health Services) at the University of Pittsburgh and a Bioethics Fellowship at the Harvard Medical School Center for Bioethics. Her academic interests include ethics and decision-making in critical illness, and enhancing patient and family-centered care along the critical care continuum.

In addition to joining the Department of Critical Care Medicine, she also holds adjunct appointments at the John Dossetor Health Ethics Centre at the University of Alberta and the University of Pittsburgh School of Medicine.

She originally hails from Vancouver, BC and currently lives in Edmonton with her husband and two step-kids. In her spare time, she enjoys backcountry hiking, folk music festivals, and all ocean-related activities.



Nori Bradley **Assistant Professor, Department of Surgery**

Dr. Bradley is a Trauma & Acute Care Surgeon at the UAH and Assistant Professor (Special Continuing) in the University of Alberta Department of Surgery. She is the surgical lead to reduce local Trauma Quality Improvement Program (TQIP) complications and optimize analyst efficiency.

Dr. Bradley also supports the review of quality indicators for spinal cord injury patients and supports efforts to optimize the acute care of these patients with the Neurosciences, Rehabilitation & Vision SCN. Dr Bradley will support Quality Improvement efforts in the Neurosciences ICU, supporting our multidisciplinary partners.



Jocelyn Slemko
Clinical Lecturer

Dr. Slemko completed medical school at the University of Calgary and returned home to Edmonton to do residency training in Internal Medicine and Adult Critical Care. Jocelyn has joined the intensivist teams at the Sturgeon Community Hospital, where she is leading the research and quality improvement programs, and the General Systems ICU at UAH. She has just successfully completed a Master's of Science (with Distinction) in Patient Safety and Clinical Human Factors at the University of Edinburgh. She is excited to embark on building a zone-wide patient safety program for critical care, focusing on adverse event detection and mitigation, and the role human factors play in the functioning of an ICU. She also continues to serve as the Director of Simulation for the Core Internal Medicine residency program. When not at work, you can find her with her daughter and pup, or in the kitchen and garden (probably listening to Taylor Swift).



Henry T. Stelfox
Professor
Deputy Dean, Faculty of Medicine and Dentistry

Dr. Tom Stelfox is a professor in the Department of Critical Care Medicine and the inaugural Deputy Dean of the Faculty of Medicine and Dentistry, College of Health Sciences, University of Alberta.

Tom received his MD from the University of Alberta, completed his internal medicine residency at the University of Toronto, earned a Ph.D. in health care policy at Harvard University and did a critical care fellowship at the Massachusetts General Hospital. He served as joint clinical and academic head of the Department of Critical Care Medicine, University of Calgary and Alberta Health Services and is the past Scientific Director of the O'Brien Institute for Public Health, University of Calgary. With more than 400 peer-reviewed publications, over \$25 million in funding and \$80 million in network and training grants, Stelfox's focus on the application of health-services research methods to improve the quality of health-care delivery to critically ill patients has made a substantial impact on health policy and patient care.

Current department members

Aws Alherbish

Associate Clinical Professor

Sean Bagshaw

Professor

Department Chair and Zone Clinical Department Head

Peter Brindley

Professor

Brian Buchanan

Associate Professor

Director, Critical Care Ultrasound Program, Department of Critical Care Medicine

Assistant Program Director, CCM

Leonard Byker

Assistant Clinical Professor

Dominic Carney

Assistant Clinical Professor

Raiyan Chowdhury

Associate Clinical Professor

Jonathan Davidow

Associate Clinical Professor

Deputy Clinical Department Head, Edmonton Zone

Dennis Djogovic

Clinical Professor

Site Medical Director, EG King General Systems Critical Care Unit, University of Alberta Hospital

Medical Director, HOPE (Human Organ Procurement and Exchange)

Shelley Duggan

Clinical Professor

President-Elect, Alberta Medical Association

Ehab Eshtaya

Clinical Lecturer

Neil Gibson

Clinical Professor

Associate Zone Medical Director, Acute Care Coverage

Monica Henry

Assistant Clinical Professor

Darren Hudson

Assistant Clinical Professor

Michael Jacka

Associate Professor

Curtis Johnston

Clinical Professor

Deputy Zone Medical Director, Edmonton Zone

Brittany Kula

Clinical Lecturer

Demetrios (Jim) Kutsogiannis

Professor

Andrea Letourneau

Clinical Lecturer

Vincent Lau

Assistant Research Professor

James Lee

Assistant Clinical Professor

Warren Luksun

Assistant Clinical Professor

Physician Lead, Anesthesia Care Teams, Edmonton Zone, Department of Anesthesia, AHS

Kimberley Macala

Associate Professor

Erika MacIntyre

Associate Clinical Professor

Graham Mah

Clinical Lecturer

Darren Markland

Assistant Clinical Professor

Lazar Milovanovic

Clinical Lecturer

Roman Nepomuceno

Clinical Lecturer

Jeffrey Odenbach

Clinical Lecturer

Arabesque Parker

Assistant Clinical Professor

Site Medical Director – Royal Alexandra Hospital

John Damian Paton-Gay

Assistant Clinical Professor
Trauma Section Chief, Edmonton Zone

Oleksa Rewa

Associate Professor
Director, Research and Innovation, Department of Critical Care Medicine
Site Medical Director, Sturgeon Community Hospital

Andrea Robinson

Clinical Lecturer

Elizabeth (Ella) Rokosh

Associate Clinical Professor
Medical Informatics lead, Edmonton Zone

Adam Romanovsky

Assistant Clinical Professor
Director, Education, Department of Critical Care Medicine

Janek Senaratne

Assistant Clinical Professor
Department Director of Simulation
Critical Care Medicine Residency Program Simulations Leader

Gurmeet Singh

Associate Clinical Professor
Medical Director, Adult ECMO Program

Wendy Irene Sligl

Professor
Senior Medical Lead - Critical Care PIN

Gabriel Suen

Assistant Clinical Professor
Associate Zone Medical Director, Critical Care Medicine

Clinton Torok-Both

Assistant Clinical Professor
Site Medical Director, Misericordia Hospital

Derek Townsend

Clinical Professor
Facility Medical Director - University of Alberta Hospital,
Mazankowski Alberta Heart Institute, Kaye Medical Clinic

Sean van Diepen

Associate Professor
Site Co-Medical Director, Cardiac Intensive Care Unit, Mazankowski Alberta Heart Institute

Sanam Verma

Assistant Clinical Professor

Mary Elizabeth (Liz) Wilcox

Associate Professor
Site Medical Director, Leona and Kenneth Biggs and Dr. Peter Allen
Neurosciences Intensive Care Unit, University of Alberta Hospital

Fernando Zampieri

Assistant Professor

Mohamad Zibdawi

Assistant Clinical Professor
Site Medical Director, Cardiovascular ICU, Mazankowski Alberta Heart Institute

David Zygun

Professor
Medical Director, Edmonton Zone

Adjunct Appointments

Samantha Bowker

Adjunct Assistant Professor

Nori Bradley

Assistant Professor, Department of Surgery

Lawrence Cheung

Professor, Department of Medicine
Associate Dean, Post-Graduate Medical Education, Faculty of Medicine and Dentistry

Matthew Douma

Adjunct Assistant Professor

Adam Hall

Adjunct Clinical Lecturer, Critical Care, Red Deer Regional Hospital

Constantine (Dean) Karvellas

Professor, Department of Medicine

Rachel Khadaroo

Professor, Department of Surgery

Michael Joon Kim

Associate Professor, Department of Surgery

Tafirenyika Madzimure

Adjunct Assistant Professor, Critical Care, Grande Prairie Regional Hospital

Michael Russell

Adjunct Clinical Lecturer, Critical Care, Red Deer Regional Hospital

Janek Senaratne

Associate Professor, Department of Medicine
Director, Simulation, Department of Critical Care Medicine

Matthew Simmonds

Associate Clinical Professor, Department of Anesthesiology and Pain Medicine

Stacey Skoretz

Adjunct Assistant Professor

Edward E Tredget

Professor, Department of Surgery

Sandy Widder

Associate Professor, Department of Surgery

Director, Quality and Safety, Department of Critical Care Medicine

Associate Dean, Professionalism, Faculty of Medicine and Dentistry

Retired from Critical Care Practice

Ronald Brisebois

Mark Heule

Michael Meier

Mary Stephens

Department Personnel

Lisa Cruwyls - Academic Department Manager

Department Office

Susan Beisel - HR and Finance Assistant

Lorraine Nowak - Executive Assistant to the Chair

Rosanne Prinsen - Department Communications Coordinator

Ana Wigger - Medical Education Program Administrator

Tammy Beko – Administrative Assistant

Department Research Office

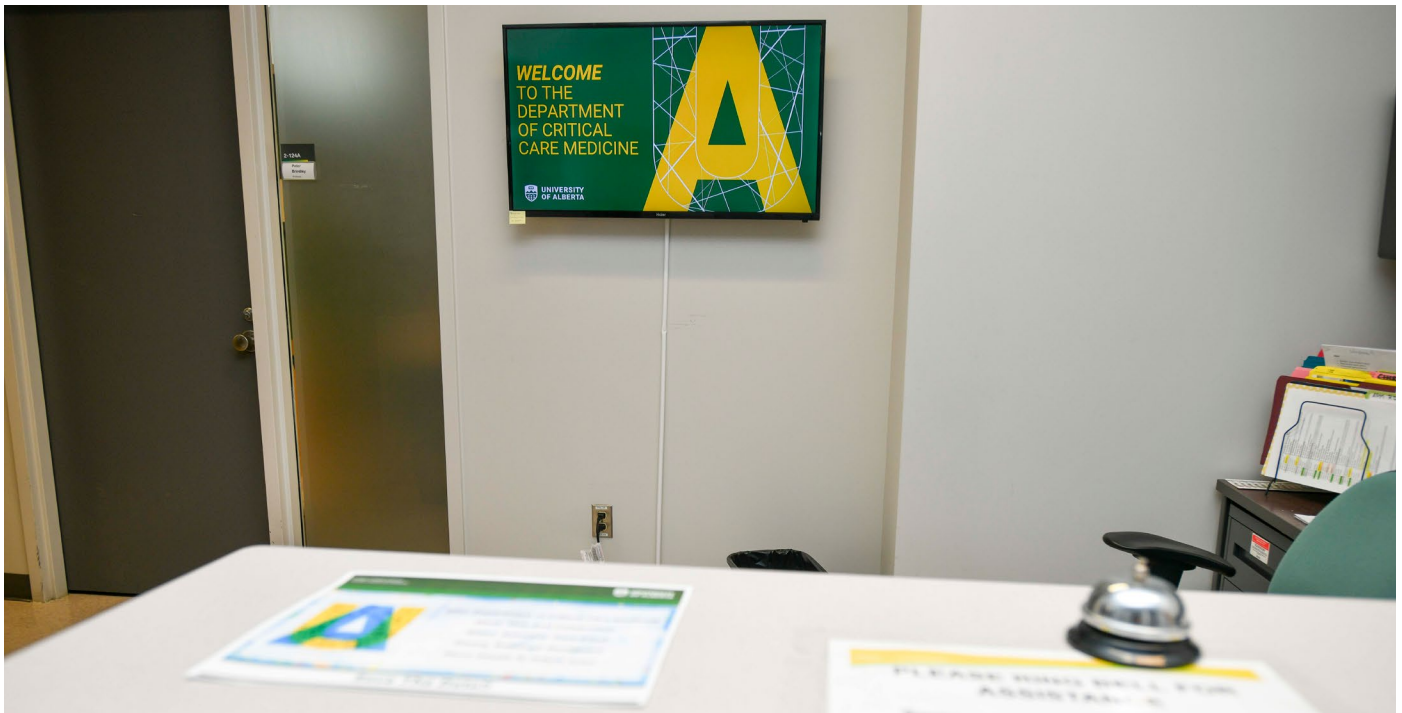
Nadia Baig - Research Manager

Caylin Chadwick - Research Coordinator

Fadi Hammal - Research Associate

Gayathri Kalathil Prem - Research Assistant

Dawn Opgenorth - Project Manager



Grey Nuns Hospital Research Office

Janek Senaratne - Principal Investigator

Tammi Breymann - Research RT

Sharmila Chinnaraj - Research RN

Larissa Fedor-Turchenek - Research Pharmacist

Bernadette Fernando – Research Coordinator

Jennifer Hamilton - Research CNE

Anushka Jayasekara - Research Manager

Larissa Johnson - Research RT

Shibi Nambichan Kudy Geroge - Research Charge RN

Isabel Kwek - Research Pharmacist

Harpreet Lehal - Research Unit Clerk

Lazar Milovanovic - Sub-Investigator

Mehvash Qureshi - Research NP

Sarah Stauffer - Research NP

Winston Bui - Research RN

Hafsa Choudhry - Research Coordinator

Sue Koshy - Research NP

Royal Alexandra Hospital Research Office

Tayne Hewer - Research Coordinator

Patrica Thompson - Research Manager

Sturgeon Community Hospital Research Office

Sargun Sokhi – Research Coordinator

Conferences

The annual ASICP - CC SCN Research Symposium was held once again at the Post Hotel in beautiful Lake Louise, Alberta on Saturday January 20, 2024. The goal of the ASICP - CCSCN research symposium is to build research capacity for scientific work in the Alberta critical care medicine community. There was a broad spectrum of presenters, including multi-level learners, early career, and multi-disciplinary clinicians, who were selected to present their innovative work at this year's symposium. This year, there were 9 very high-quality oral abstract presentations from the University of Alberta, University of Calgary and University of Lethbridge.

First prize of \$650 for oral abstract presentation went to Ainsley Smith for **"Evaluating bone and muscle changes among critical care patients with CT imaging"**.

The second prize of \$350 for oral abstract presentation went to Jessica Jenkins for **"Advance Care Planning for Adults with Moderate to Severe Congenital Heart Disease ACP-ACHD: Readiness Trial"**.



Grand Rounds

2023-2024 DCCM Grand Rounds

DATE	SPEAKER	TOPIC
5-Sep-23	Dr. Fernando Zampieri	Critical Care Practice in Canada and Brazil: Similarities and Differences
12-Sep-23	Dr. Teneille Gofton	Neurophysiology and organ donation
26-Sep-23	Dr. Matthew Schroyens	VA-ECMO in infarct-related cardiogenic shock: The state of the art
3-Oct-23	Drs. Anderson, Chwalek, Djogovic, Hudson, Robertson, Zygun	Death by Neurologic Criteria (DNC): Ethical and Practical Insights
10-Oct-23	Dr. Heather Perry	(Atypical) Malignant Hyperthermia for the Intensivist: A Hot Topic?
17-Oct-23	Dr. Sandy Widder	Quality Rounds - zoom info removed
31-Oct-23	Dr. Sarah Andersen	Walking Together: How Can We Improve Shared Decision Making Across the Critical Illness Journey?
7-Nov-23	Dr. Peter Brindley and Matt Douma	Cardiopulmonary Resuscitation: putting patients and families first
14-Nov-23	Dr. Julie Kromm	Post-arrest prognostication: A scientific art
5-Dec-23	Dr. Madeleine Böhrer	Getting to the heart of ECMO - Mechanical circulatory support in pediatric cardiac patients
12-Dec-23	Dr. Paige Burgess	INTENSIVE CARE beyond the UNIT
9-Jan-24	Dr. Zahraa Habeeb	Artificial intelligence in critical care
16-Jan-24	Drs. Shaun Cowan, Jeff Odenbach	The Alberta Transport Medicine System - A Tour and Discussion
23-Jan-24	Drs. Pam Mathura, Elaine Yacyszyn	From the Frontlines: Supporting Physician Leadership in Quality Improvement
30-Jan-24	Dr. Evan Wiens	Dual antiplatelet therapy for non-ST-elevation myocardial infarction in 2024: what the intensivist should know
6-Feb-24	Dr. Josh Butcher	Weapons of Mass Destruction: A focus on Radiological Catastrophes and Accidents

2023-2024 DCCM Grand Rounds

DATE	SPEAKER	TOPIC
13-Feb-24	Dr. Jonathan Gale	Anemia in the ICU
27-Feb-24	Drs. Zoya Zaeem, Penny Smyth, Melanie Lewis, Shannon Ruzycski	Workplace Discrimination and Harassment Among Albertan Postgraduate Medical Trainees: A Cross-Sectional Survey
5-Mar-24	Dr. Amélie Cyr	Firearm Injuries - A Worrisome Trend
12-Mar-24	Dr. Jay Gorman	Environmental Sustainability and Healthcare
19-Mar-24	R.T. Dr. Noel Gibney Lecture - Dr. Rob Fowler	Critical Care sans Frontières/Critical Care without Borders
2-Apr-24	Dr. Andrea Davenport	Neurotrauma in the ICU: Are we there yet?
9-Apr-24	Dr. Shaurya Taran	Ventilation and Extubation Decisions in Patients with Acute Brain Injury: What Does the Evidence Tell Us?
16-Apr-24	Dr. Ella Rokosh	Problems and Problem Oriented Charting – Clarity and Efficiency in Connect Care
23-Apr-24	Dr. Jamie Robertson	Anatomy of a Conflict: How the Clinical Ethics Service helps manage patient/family-provider disagreement
30-Apr-24	Dr. Sandy Widder	Quality Rounds - zoom info removed
14-May-24	Dr. Michal Chwalek	Beyond the inspiratory hold: the ventilator as diagnostic machine
21-May-24	Dr. Mohammed Alobaylan	Diagnostics dilemmas with a common disease
28-May-24	Dr. Victor Tapson	Acute Pulmonary Embolism: Risk Stratification and Advances in Therapy
4-Jun-24	Dr. Forbes McGain	The ICU: Can the Pinnacle of Healthcare Waste be the Lighthouse of Low Carbon?
11-Jun-24	Dr. Khaldoon Aljerian	The Final Consultation (Autopsy)

Leading with Purpose.



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