



**UNIVERSITY
OF ALBERTA**

EXIT

2022-23

ANNUAL REPORT

DEPARTMENT OF CRITICAL CARE MEDICINE

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The Department of Critical Care Medicine and 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, the 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 AND DIVERSITY

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 inter-disciplinary 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 take 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 & DIVERSITY

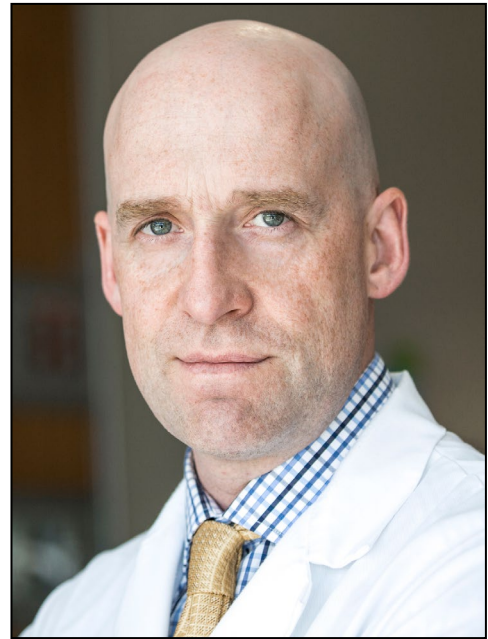
The department is committed to ensuring transparency, social accountability and to facilitate diversity for recruitment, promotion and leadership. The department has been working closely to align with the Faculty of Medicine and Dentistry and Alberta Health Services on these processes.

MESSAGE FROM THE CHAIR

Welcome to this year's annual report from the Department of Critical Care Medicine!

This past year we witnessed the resilience and continued commitment of our department to excellence in patient care in the aftermath of the COVID-19 pandemic. I am humbled by the achievements of our department across the domains of clinical innovation, quality and safety, research, and education.

For the last seven years, Dr. Shelley Duggan has served as our Clinical Department Head. She worked tirelessly throughout her tenure by providing a steady hand to our department. Her dedication and passion for furthering both the clinical and academic mission was indefatigable. Recognized as a fierce advocate for patients, families, and colleagues alike, Dr. Duggan was the successful candidate and will be assuming the role of President-Elect for the Alberta Medical Association. The department looks forward to supporting her in this role as she takes on the current challenges facing our health care system. I am confident that she will meet these challenges with the same level of passion and candor I have come to admire.



Dr. Sean M Bagshaw, MD, MSc, FRCPC
Professor and Chair
Faculty of Medicine and Dentistry

It is with pride that I provide an update on our department's commitment to excellence in patient care and clinical innovation. The seamless integration between our academic and clinical members is one of our greatest strengths. I acknowledge with gratitude the many contributions, including financial, are made across the Edmonton zone by department members supporting our academic enterprise. With the support of 10 clinical sites within the Edmonton, North and Central zones, our department led and/or contributed to many innovative clinical best practice implementation initiatives such as *"Dialyzing Wisely"* led by Dr. Oleksa Rewa (funded by PRIHS); *"ROSA"* led by Dr. Arabesque Parker; *"Venting Wisely"* led by Dr. Ken Parhar (Calgary); and *"Don't Misuse My Blood"* led by Dr. Dan Niven (Calgary). In addition, the Edmonton ICU Survivorship Clinic led by Dr. Lazar Milovanovic and Dr. Carmel Montgomery (Faculty of Nursing) continues to thrive. This innovative clinic meets the complex needs of survivors of critical illness and their caregivers, including patients with symptoms of long COVID.

Our small department continues to have a sustained impact in academic and scholarly activity having contributed 230 peer-reviewed publications, many in high-impact journals, a total of \$360,000 in new funding, and \$1.8 million in continued funding shared across more than 50 active projects within the Edmonton Zone. We continue to foster a broader membership to meet our academic mandate. I am excited that Dr. Elizabeth Wilcox (Associate Professor, MD, PhD) has been recruited from the University of Toronto, as a clinician-scientist, neuro-intensivist, and as the new Medical Director of the Peter Allen Neurosciences ICU. I am also delighted to welcome Dr. Fernando Zampieri (Assistant Professor, MD, PhD) from the University of São Paulo, joining the department as a clinician-scientist and intensivist in the E. Garner King General Systems ICU. We have also welcomed several new clinical faculty: Dr. James Lee, Dr. Brittany Kula, Dr. Graham Ma, Dr. Sanam Verma, Dr. Roman Nepomuceno, and Dr. Andrea Letourneau. Lastly, I am thrilled that many of our faculty have transitioned into new leadership roles and portfolios. Notably, Dr. Wendy Sligl has taken on a new role as Senior Medical Director of the Critical Care Strategic Clinical Network™. We look forward to working with Dr. Sligl in supporting network initiatives.

We will always confront challenges - from ICU bed capacity, to after-hours coverage, continued grant funding, and targeted recruitment - this year's annual report highlights who we are, how we've grown, and what we've achieved.

CLINICAL DEPARTMENT HEAD TERM IN REVIEW

It is with mixed emotions that I leave the role of Zone Clinical Department Head for Critical Care in Edmonton. I am excited for a new challenge but realize I am leaving a highly functional department and leadership team. I have had the pleasure of working with Dr. Sean Bagshaw, Academic Chair, and feel a sense of pride in how we developed and executed a common vision. Recruitment was always our main priority, as it is people that create a successful department. We expanded the team significantly with skilled clinicians, educators, researchers, and leaders. We have worked towards more stable payment models, such as the Edmonton ICU alternative relationship plan (ARP) and know that Academic Medicine and Health Services Program (AMHSP) positions are on the horizon.

I had the privilege of leading this dedicated group through the COVID-19 pandemic and organizing our response. Every time we were asked to do more, we answered with an unequivocal “yes”. We doubled our bed capacity at the peak of the delta wave to care for all those who needed us. I could not have been prouder of the team during these difficult years. Now we can return our attention to the fantastic quality work that we are known for, both locally and with the Critical Care Strategic Clinical Network™. Our colleagues are shining in this area, and we need to continue to support them.

I can also see that with recent recruitment, the academic mission will only grow exponentially. Our training program remains one of the best in Canada and is sought after. This takes dedicated leadership and a passion for teaching. We are seemingly able to find amazing program directors and leaders in education without too much difficulty. The educational mission is enhanced by the department members and other programs such as point of care ultrasound, quality and safety and a strong research framework. Finally, while this has been an ongoing effort, there is much to do with regards to workforce. Plans are underway to secure funding to recruit and maintain tier one coverage, but this will take many years to achieve.

I am moving on to a new role as Alberta Medical Association President. It will bring new challenges but I welcome the change. I remain a member of this department and I will be leaning on many of my DCCM colleagues for support.



Dr. Shelley Duggan, MD, FRCP

Clinical Department Head, Critical Care, Edmonton Zone,
Alberta Health Services

Clinical Professor, Department of Critical Care Medicine

CLINICAL LEADERSHIP

When I started in practice in 2002 as a Nephrologist and Intensivist, I took on a small leadership role as the Medical Director of the Royal Alexandra Hospital (RAH) dialysis unit. It was a great experience to see how operations worked and to start to learn the language of administration (you thought learning medical words was a task – I think there are just as many admin words and a whole lot more acronyms to try to learn!). I eventually took on the role of Medical Director for Critical Care at the RAH, and then added Site Chief of Medicine and Deputy Zone Clinical Department Head for Medicine (that was all a bit much to do at once – but hey, I thought I could do anything at the time).

When I eventually stepped into the Associate Zone Medical Director and Facility Medical Director (FMD) role at the RAH, I had around 12 years of leadership experience under my belt. Of all the roles I've held, I found the FMD role at the RAH the most challenging and yet most rewarding, and even fun! It was in these roles that I've discovered how amazing our operational colleagues are. I think I've learned more from my dyads than I have from any leadership book (and many of you know how much I like leadership books). I've known many operational leaders that work much harder than physician leaders and deal with stuff we'd never have the time or energy for. So many of these leaders are excellent examples of servant leaders that I have the privilege of calling friends and colleagues.

Now, I've moved into the Deputy Zone Medical Director with a focus on physician leadership development (and apart from an unfortunate 2.5-year blip as Medical Advisor for the AHS Emergency Coordinating Center), I now have the privilege of working with physician leaders and doing our best to set them up for success. Along the road, I obtained an Executive Coaching certificate from Royal Roads University and have particularly enjoyed getting to work with the Edmonton Zone senior leaders in a coaching capacity.

I would say that I've learned as much in my leadership role as I ever learned in my medical training and have enjoyed the work equally as much as I have the clinical work. When one goes into administration/physician leadership, we have the privilege of serving our colleagues in unique ways and building on the backs of the giants who have gone before us to make the health system a little bit better than how we found it. I'm convinced that this is not "going to the dark side" but a very rewarding career choice.



Currently, I am having a lot of fun working with physicians across the province through a program we call Critical Conversations. We've had between 120-180 participants in this virtual course, and it's been exciting to learn together how to gain the skills we need to have critical conversations successfully. This course will continue to be offered and we would welcome anyone to attend (it might help you with conversations with your kids even more than with your colleagues). We also host a monthly virtual medical leadership development session that anyone interested in leadership is welcome to attend.

Curtis Johnston, MD, FRCPC, CEC, CHE
Deputy Zone Medical Director, Edmonton Zone,
Alberta Health Services
Clinical Professor, Department of Critical Care
Medicine

CLINICAL INNOVATION

ICU SURVIVORSHIP CLINIC

The Edmonton ICU Survivorship clinic was established by Dr. Raiyan Chowdhury for the assessment and ongoing follow-up of survivors of critical illness. This multidisciplinary clinic currently includes physician and physiotherapist assessment with consultation provided by registered nurses, pharmacists, and occupational therapists. The care team has experience and specialization in both the acute and long-term care of critically ill patients.

The clinic is within the Misericordia Community Hospital Critical Care Clinic and accepts referrals from family physicians, specialists, and nurse practitioners. The clinic is focused 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. In addition to the care of ICU survivors, the clinic has a research focus on long-term outcomes of ICU survivors, the development of a standardized referral pathway for patients at hospital discharge and the implementation of a multidisciplinary team model for the routine assessment of ICU survivors.

Insights gleaned from patient outcomes will be used to address current treatment approaches in the ICUs across the Edmonton Zone. 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.



Lazar Milovanovic, MD, FRCPC
Medical Director,
ICU Survivorship Clinic
Clinical Assistant Professor, Department of
Critical Care Medicine

INFORMATICS AND DATA SCIENCE

The most exciting development this academic year was the deployment of Connect Care™ at the Grey Nuns and Misericordia Community Hospitals. As of May 2023, all Edmonton Zone critical care sites were live in Connect Care™. Within Alberta Health Services, Critical Care is regarded as one of the “no worry” specialties due to our proven track record of smooth transitions, from training to implementation. Providers and operations staff were well prepared, engaged, and excited to get into the system. There was an issue with getting medications out of Pyxis that was resolved without panic within a few weeks. Connect Care™ continues to be put to work improving patient care processes and outcomes.

Working closely with eCritical Alberta, both Venting Wisely and Dialyzing Wisely are being rolled out throughout the province. Sedation practices across the zone are now being audited and fed back to end users to improve patient safety and quality improvement, led by the Reduction of Sedation and Analgesia (ROSA) initiative. In November 2023, Fort McMurray, Medicine Hat, and Lethbridge ICU will go live and this completes the implementation of Connect Care™ throughout the province.

The next phase is optimization. While many people cannot imagine returning to paper charting, there are still many opportunities for improvement. The KLAS Collaborative Group completed a provincial survey this year focused on implementation and use of Connect Care™. The results were sobering but not unexpected. There is an urgent need to improve the layout and communication. At the same time, enhanced training on personalizing the system and self-generating reports is expected to improve user experience and satisfaction.



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

Darren Hudson, MD, FRCPC
Physician Master Builder, Connect Care
Medical Director, eCritical Alberta

CLINICAL OPERATIONS

I was asked to serve as interim Associate Chief Medical Officer responsible for the Strategic Clinical Networks™ (SCNs) over the past year. The SCNs provide a structure for patients and families, policymakers, clinicians, and researchers to collaborate across geographical and institutional boundaries and co-design solutions that address priority health challenges and support transformational change. Alberta's SCNs are embedded within a single, province-wide health care system, which enables wide-scale implementation of strategies proven to reduce unwarranted variation and improve care, clinical appropriateness, and health outcomes. These networks support a learning health system by bringing together people, research, and innovation, and are delivering a positive return on investment in terms of cumulative savings in the health system.

During this past year, several important initiatives were established or advanced including the novel Alberta Virtual Chronic Pain Program. This program represents a new model of care that provides wellness strategies, education, and treatment options to those who live with chronic pain. The program is designed to utilize digital strategies and a multidisciplinary team model to provide access to quality care across Alberta to meet the needs of patients. In addition, several important leadership positions were recruited including Dr. Wendy Sligl as Senior Medical Director of the Critical Care Strategic Clinical Network™.



David A. Zygun, MD, MSc, FRCPC
Medical Director, Edmonton Zone
Professor, Department of Critical Care Medicine



CLINICAL UNITS

University of Alberta Hospital

E. Garner King General Systems Intensive Care Unit



1792

Admissions



7.4

Avoidable
time (%)



4.5

ICU LOS
(med, days)



60

IMV (%)



17

Mortality (%)



75

APACHE III
(mean)

The “King” is the largest ICU in Alberta, and we are still growing! We provide care to most critically ill patient groups, and specialized populations including trauma, burn and thermal injuries, hematologic malignancies, head and neck reconstruction, liver failure, and organ transplantation including liver, kidney, pancreas, islet cell, small bowel and multi-visceral. In 2022, we cared for over 100 patients receiving liver transplantation, roughly 20% of all liver transplants performed in Canada. For years, our unit operated with 32 funded beds. With the recent Government of Alberta commitment to increasing critical care capacity, we have now grown to 41 beds, with a final goal of 43 beds. To support this, we have opened a new 8 bed branch of our GSICU in the Mazankowski Heart Institute, with its own intensivist team.

The King is also the home of the Special Isolation Unit (SIU), one of only two sites in the province capable of managing patients with highly infectious disease (e.g., Ebola viral disease). Renovations of this area are planned, though we remain ready to activate this SIU at a moment’s notice.

In June 2023, our Burn Unit underwent successful accreditation by the American Burn Association to retain identification as an ABA verified burn centre. This distinction places us within a group of North American centers recognized as providing excellence in clinical and evidence-based care of thermal injuries, and one of only two Canadian centers with this distinction.

The King is a prominent teaching site and takes great pride in supporting the education of over 80 residents and 18 medical students every year, under the watchful eyes of Dr. Adam Romanovsky, Director of Education and Program Director in the department.

Our strength lies not in our machines but our people. We are so excited this year to welcome Dr. Sarah Andersen (Harvard Bioethics Fellow), Dr. Fernando Zampieri (international research powerhouse), Dr. Tom Stelfox (the first Deputy Dean of the Faculty of Medicine and Dentistry, University of Alberta), Dr. Elizabeth Wilcox (medical director of Neurosciences ICU) and Matt Douma (Clinical Nurse Specialist and expert in patient and family centered care).

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

Our established intensivist group also continues to impact beyond the clinical walls of our ICU. To recognize but a few, Dr. Wendy Sligl is the new Senior Medical Director of the Critical Care Strategic Clinical Network™, Dr. Oleksa Rewa has been providing humanitarian outreach efforts in Poland, Dr. Darren Hudson is the Medical Director of eCritical Alberta, and we announce with great pride the retirement of Dr. Dat Chin, intensivist and master educator in the department for the last 38 years, and also the first program director of the Critical Care residency program at the University of Alberta. Dr. Chin also served as the Medical Director of the King for 18 years. To honor his legacy, the Dr. Wu Dat Nin Chin Scholarship in Critical Care Medicine has been launched this year.



Carmen Boyd, RN

Patient Care Manager

Dennis Djogovic, MD, FRCPC

Medical Director

Clinical Professor, Department of Critical Care Medicine



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



The Neurosciences ICU and Observation unit care for patients with complex neurological and neurosurgical problems. We are a closed ICU and step-down unit practicing a shared management model with our neurologists, neurosurgeons, orthopedic and trauma surgeons. Our Neurosciences unit is one of only a handful of dedicated neurocritical care units in Canada. We encompass 11 ventilated ICU beds and 4 high acuity beds. Our unit provides dedicated support of organ donation through our HOPE program bed. In the 2022-2023 academic year we cared for 782 patients. Work is underway for a major expansion to 24 beds for 2026-2027 to meet increased demand for services.

Our operations team is led by Pam Lavallee (Patient Care Manager), David Kolthoff, Cody Thompson, and Amy Weinrauch (Unit managers). In addition, we are supported by a diverse and experienced interprofessional team. It is important to recognize the hundreds of talented and highly skilled individuals within this unit: nurses, respiratory therapists, physiotherapists, dieticians, pharmacists, social work, occupational therapists, and chaplains. We are proud, awed, and inspired by our incredible multidisciplinary team.

We recently introduced weekly interprofessional (“continuity”) rounds within our Neurosciences units as providing excellent continuity of care along the trajectory of illness for our critically ill patients and their families is of paramount importance. Other quality improvement initiatives include implementation of an acute care pathway for our patients with spinal cord injury. This was a multisite project to develop standardized protocol for the management of patients with cervical and high-thoracic spinal cord injury and respiratory compromise. We are grateful to our physiatry colleagues for their work in establishing an ICU order set for care of spinal cord injury patients. We are proud of our collaborative care model for patients with complicated neurological and neurosurgical disorders and for our integral work supporting organ donation.

Our Neurosciences unit contributes to a wide range of scholarly pursuits, including research in investigator initiated, CIHR funded, and industry funded projects, as well as the participation in the Rick Hansen Spinal Cord Registry.



552

Admissions



6.6

Avoidable
time (%)



3.7

ICU LOS
(med, days)



72

IMV (%)



18

Mortality (%)



56

APACHE III
(mean)

Mishaela Houle, RN

Interim Executive Director Neurosciences

Elizabeth Wilcox, MD, PhD

Medical Director

Associate Professor, Department of Critical Care Medicine

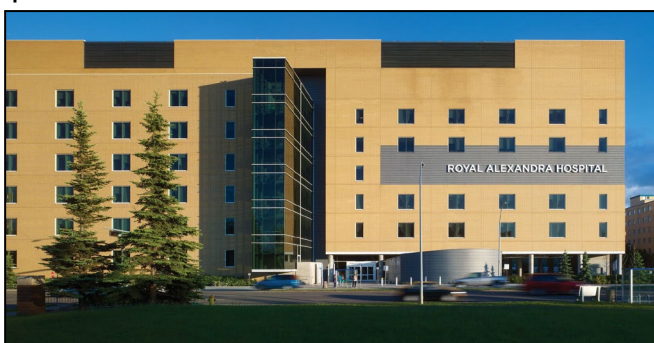
Royal Alexandra Hospital Intensive Care Unit

The Royal Alexandra Hospital (RAH) has over 800 beds and is one of Canada's leading clinical and teaching hospitals, treating patients from across western and northern Canada. The hospital offers a wide range of diagnostic and treatment services, including specialized services within cardiology, medicine, obstetrics, surgery, critical care, emergency, and trauma care. It houses the regional thoracic surgery program.

The ICU at the RAH is currently operating as a 29-bed unit served by a diverse group of 14 fellowship trained intensivists with base training in Anesthesia, Cardiology, Emergency Medicine, General Internal Medicine, Hematology, Infectious Diseases, Nephrology, and General/Trauma/ENT Surgery. There is full time coverage by critical care trained Nurse Practitioners as well as rotating residents and fellowship trainees. There are approximately 1450 admissions per year including trauma, medical, surgical, and obstetrical cases. The unit is managed by a collaborative team of Registered Nurses, Registered Respiratory Therapists, Pharmacists, Physiotherapists, Occupational Therapists, Dieticians, Social Workers, Speech and Language Pathologists, Nurse Attendants and Unit Clerks.

The RAH ICU Rapid Response Team is an RN and RT led team with 24/7 access to an Intensivist, with a focus on enabling and assisting the attending service in managing their patients who do not require transfer to the ICU. The annual activated RRT calls are between 900-1300.

As an Inner-City ICU, we serve a significant number of vulnerable patients, including a large Indigenous population, those suffering from substance use disorders, housing insecurity, and victims of interpersonal violence. We are committed to improving our understanding of the challenges and enhancing the care we provide to these populations. The first step in this process is in understanding the scope and outcomes of these populations by creating a database. Preliminary work has been presented at the Canadian Critical Care Forum and funding is being sought to further develop this work.



1461

Admissions



6.3

Avoidable
time (%)



3.5

ICU LOS
(med, days)



67

IMV (%)



15

Mortality (%)



68

APACHE III
(mean)

Royal Alexandra Hospital Intensive Care Unit



The RAH ICU prides itself on a robust and innovative Quality Improvement (QI) program. Several ongoing initiatives include focus on reduction of delirium and improving mobilization; implementation of an intubation checklist; operating theatre to ICU handover process and checklist; transition of care to ward checklist and follow up; behavioral safety program; new oral care protocol and de-adoption of chlorhexidine use; AirTAP® Turning / Repositioning System to prevent pressure related injuries; and multidisciplinary rounds improvement. The RAH ICU also actively participates in Critical Care Strategic Clinical Network™ initiatives, including the Reduction of Sedation and Analgesia (ROSA) project – led by the RAH ICU Quality Lead Dr. Arabesque Parker.

The RAH ICU is also delighted to welcome several new intensivists to our team over the last year, including Dr. James Lee (conflict and humanitarian work with MSF), Dr. Graham Ma (clinical ethics and point-of-care ultrasound), Dr. Sanam Verma (dual trained in cardiology) and Dr. Brittany Kula (dual trained in infectious diseases).

Tove LeBlanc, RN
Patient Care Manager

Eugene Mondor, RN
Clinical Nurse Specialist

Jonathan Davidow, MD, FRCPC
Medical Director
Clinical Professor,
Department of Critical Care Medicine

Mazankowski Alberta Heart Institute Cardiovascular Surgical Intensive Care Unit



The Cardiovascular Surgical ICU (CVICU) is a 25-bed unit based at the Mazankowski Alberta Heart Institute (MAHI). It supports the adult cardiac surgical programs including open heart surgery, adult congenital heart disease, heart and lung transplantation programs, Ventricular Assist Device (VAD), and Extracorporeal Membrane Oxygenator (ECMO) programs. The programs cover Northern Alberta, and large parts of Western Canada and North-west Territories. In addition, the CVICU plays a key role in the care of patients with cardiogenic shock in need of mechanical extracorporeal life support (ECLS).



1548

Admissions



1.9

Avoidable
time (%)



2.7

ICU LOS
(med, days)



93

IMV (%)



5

Mortality (%)



56

APACHE III
(mean)

Led by Dr. Gurmeet Singh, the CVICU also provides one of the largest programs for ECMO for respiratory failure in Canada, including for viral illness (e.g., COVID, influenza) and for bridge to lung transplantation.

The CVICU medical team consists of eight Royal College certified Critical Care specialists with diverse specialty backgrounds including anaesthesia, cardiac surgery, cardiology, emergency medicine and internal medicine. The intensivists provide in-house coverage 24/7. The care model is supported by a specialized team of Nurse Practitioners with extensive experience in cardiac surgical post operative care. The team is also made up of dedicated nursing and allied health members. The CVICU is delighted to welcome Dr. Roman Nepomuceno to our team (expertise in ECLS).

The CVICU has a strong commitment to education. It provides a unique one-year clinical fellowship program in the field of cardiac surgical critical care. The program is attended by Canadian as well as international trainees. Fellows from critical care medicine, cardiac anesthesia, cardiology, transplantation, and VAD programs rotate through the unit for its exceptional educational value. The unit has a Quality Council that identifies, evaluates, and implements quality projects in the unit. It is integrated into the DCCM and Cardiac Sciences quality teams.

Kate Bulbuc, RN

Patient Care Manager

Mohamad Zibdawi, MD, FRCPC

Medical Director

Clinical Assistant Professor, Department of Critical Care Medicine

Sturgeon Community Hospital Intensive Care Unit/Cardiac Intensive Care Unit



384

Admissions



8.2

Avoidable
time (%)



3.1

ICU LOS
(med, days)



53

IMV (%)



16

Mortality (%)



71

APACHE III
(mean)

The Sturgeon Community Hospital (SCH) is a 169-bed tertiary care center 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 and emergency and critical care medicine. The Sturgeon ICU/CCU is a combined unit with 6 beds allocated to the Intensive Care and 6 beds to the Coronary Care. There are a further 3 beds that can be split between the units. The day-to-day operations for both units are overseen by the manager and unit manager in conjunction with 24/7 clinicians. The SCH ICU provides advanced ventilatory and hemodynamic support including prone positioning and inhaled pulmonary vasodilators, and other ICU therapies such as bronchoscopy and kidney replacement therapy. The ICU is staffed by 5 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, physical and 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.

In September, the SCH ICU program will launch a Medical Emergency Team (MET). The MET model relies on a combined ICU provider, nurse and respiratory therapist model and responds to any at-risk or deteriorating patient throughout the hospital. The ICU program is also initiating a trans-esophageal echocardiography program in partnership with cardiology for patients both in the ICU and throughout the SCH.

The Sturgeon ICU participates in Edmonton Zone critical care initiatives. These are supported by a clinical nurse educator. Initiatives include involvement in the Critical Care Strategic Clinical Network™ supported programs such as Venting Wisely, Reducing Overuse of Sedation and Analgesia (ROSA), Venting Wisely and Don't Misuse My Blood. Further, the SCH ICU plans to implement a stand-alone research office and has hired a dedicated research coordinator personnel. The Research Office has committed to several research projects and will begin recruiting in 2024.

Glenda Corrigan, RN
Patient Care Manager

Oleksa Rewa, MD, MSc, FRCPC
Medical Director
Associate Professor, Department of Critical Care Medicine



Grey Nuns Community Hospital Intensive Care Unit



The ICU is a vital component of the Grey Nuns Community Hospital (GNCH). This 10-bed unit caters to a wide referral base that covers not only Edmonton but also Northern Alberta, as part of the broader referral network in Edmonton. It is recognized as the regional center for vascular care, further emphasizing its role as a cornerstone of critical care services in the zone.

The ICU operates with a robust staffing model that includes 24/7 intensivist coverage, allowing for timely clinical decision-making and expert guidance in critical situations. They are supported by daytime nurse practitioners who contribute to the provision of advanced care. The ICU thrives on a multidisciplinary team that includes respiratory technicians, clinical pharmacists, registered nurses, dietitians, physiotherapists, and occupational therapists. This multidisciplinary approach ensures holistic and specialized care for our critically ill patients.

The population serviced by the ICU is diverse and includes medical, surgical, and vascular cases, reflecting its specialization as a vascular center. Over the last year, the ICU admitted 510 admissions. Among these, 270 patients received invasive mechanical ventilation. The ICU experiences an average occupancy of 93% with an average ICU stay of 5 days and hospital mortality rate of 24%.



523
Admissions



3
ICU LOS
(med, days)



23
Mortality (%)



12.9
Avoidable
time (%)



69
IMV (%)



89
APACHE III
(mean)

The ICU is actively engaged in research and innovation and collaborates with regional, national and international partners through participation in clinical trials and research initiatives. The ICU boasts a research team who has been at the forefront of trial recruitment on a national and global scale. The ICU has participated in 5 clinical trials over the last year and lead Canadian recruitment in 3 of these trials, a testament to the ICU's commitment and dedication to advancing clinical care and knowledge through research. Our team is supported by funding from the Canadian Critical Care Trials Group.

Grey Nuns Community Hospital Intensive Care Unit

The ICU has a dedicated Point-of-Care Ultrasound (POCUS) program, built on the pillars of clinical service, quality assurance, research, and education. The program successfully applied for funding to provide new ultrasound equipment with the latest in point of care innovation, enhancing diagnostic capabilities and improving patient care. The ICU became the second site in the Edmonton zone with point-of-care, trans-esophageal capability and to offer resuscitative trans-esophageal echocardiography by fellowship trained physicians.

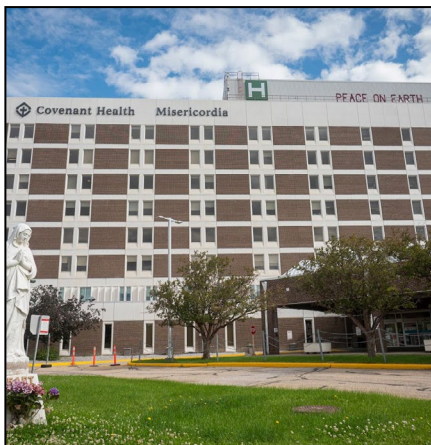
The ICU continues to excel in providing high-quality care to a broad range of critically ill patients, offering specialized services to a vast referral base across Northern Alberta. Its dedicated staff, cutting-edge technology, and commitment to continuous improvement make it an indispensable resource in the zone's healthcare ecosystem.

Paula Sharman, RN
Patient Care Manager

Leonard Byker, MD, FRCPC
Clinical Lecturer, Department of Critical Care Medicine



Misericordia Community Hospital Intensive Care Unit



The Misericordia Community Hospital (MCH) ICU is a 10 bed (6 ICU, 4 High Intensity) unit situated in a 310-bed hospital in the west end of Edmonton. Our referral base supports the local community, communities out to the west of Edmonton, as well as the remaining Edmonton and North Zones as part of a central referral program. We look forward to supporting the new emergency department opening this fall at the MCH. The diverse ICU population we serve includes medical and surgical cases with a focus on neuromuscular respiratory failure and liberation from prolonged mechanical ventilation. This specialization is a product of a longstanding association of the MCH ICU and the Edmonton

ALS and Neuromuscular clinics.

Beyond expertise and experience in neuromuscular respiratory failure and liberation from mechanical ventilation, the ICU has expertise in point-of-care ultrasound (POCUS), quality improvement, transition of pediatric to adult patients with respiratory failure, and ICU survivorship. Our intensivist group actively participates in POCUS education, quality improvement, along with several outpatient clinics, lending their expertise to keep patients healthy and functioning in the community.

The heart of the ICU is the multidisciplinary team. Our intensivist group is supported by a nurse practitioner, along with a team of nurses, respiratory therapists, pharmacists, dieticians, physical and occupational therapists, speech-language pathologists, and social workers, aiming to provide high-quality patient and family-centered care.



337

Admissions



4.1

ICU LOS
(med, days)



18

Mortality (%)



13

Avoidable
time (%)



54

IMV (%)



79

APACHE III
(mean)

Misericordia Community Hospital Intensive Care Unit

Beyond patient care, we are 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. Lazar Milovanovic (point-of-care ultrasound; survivorship clinic) and Dr. Andrea Letourneau (quality improvement and patient safety).

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

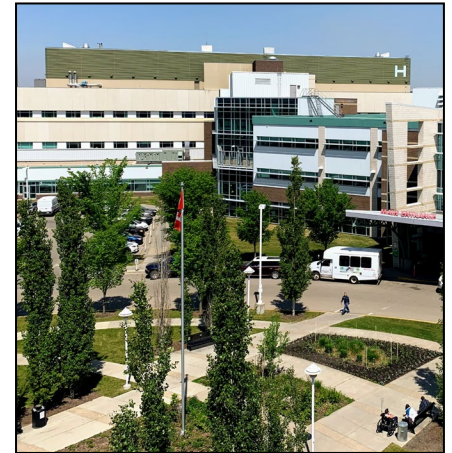


Red Deer Regional Hospital Intensive Care Unit

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. As part of this, the ICU has been funded to increase capacity from 12 to 20 beds, requiring completion of 5 beds in a shelled in space and a move of the cardiac intensive care unit (CICU) to a new location, which are in progress but not yet complete.

Our ICU operates as a multidisciplinary team, consisting of physicians, registered nurses, respiratory therapists, pharmacists, dietitians, physical and occupational therapists, and social workers. Our ICU offers a full spectrum of critical care services to patients in the zone, including invasive mechanical ventilation, advanced hemodynamic support, kidney replacement therapy and therapeutic plasma exchange. Given our location, we frequently receive patients from both RAAPID North & South, while also having to transfer critically ill patients who need subspecialty services not available at our site.

The ICU supports our hospital with an ICU Access (early intervention) Team and a Code Blue Team. We have also worked to ensure that we are able to provide the rapid availability of ICU consults to our colleagues, given significant capacity strain in medical/surgical services.



620
Admissions



8.3
Avoidable
time (%)



4.4
ICU LOS
(med, days)



69
IMV (%)



24
Mortality (%)



84
APACHE III
(mean)

Red Deer Regional Hospital Intensive Care Unit

Our goals for the upcoming year include:

- To integrate new staff onto our team as part of the increased ICU capacity required to meet current demands and prepare for the planned hospital expansion.
- The addition of research coordinators to ensure our ability to participate in clinical trials.
- Improve the access our patients have to specialty services, including increased availability of acute EEG.
- Continued participation in provincial initiatives supported through the Critical Care Strategic Clinical Network™, such as Dialyzing Wisely and Venting Wisely.

Luc Benoit, MD, FRCPC
Medical Director

Gillian Brown, RN
Patient Care Manager

Carmen Petersen, RN
Director, Inpatient Medicine, Emergency Services, Patient Access



PARTNERSHIPS



Critical Care Strategic
Clinical Network™

Critical Care Strategic Clinical Network™

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.

INDIGENOUS HEALTH: The CC SCN, Indigenous Wellness Core (IWC) and Indigenous Peoples of Alberta continued along on our health system transformational journey in 2022-2023. The CC SCN and IWC published an important systematic review and meta-analysis, describing the use of critical care services, including the incidence of critical illness and critical care outcomes among Indigenous Peoples. This work strongly implies 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 remain poorly described and represent a barrier to action.

The findings from the systematic review and meta-analysis will inform a larger program of work with Indigenous Peoples. The goal of our partnership is to better understand Indigenous Peoples' experiences and outcomes with critical care, to identify knowledge and care gaps, and to work towards ensuring a culturally appropriate and safe space. An immediate objective, was to establish an Indigenous Peoples and Critical Care Advisory Group (IPCCAC). Our newly-formed IPCCAC includes four Indigenous members representing Cree, Anishinaabe, and Metis First Nations alongside the IWC and CC SCN scientific offices.

The impacts of this program of work include advancing knowledge and health care providers' understanding of Indigenous Peoples' experiences within ICU settings in Alberta. Indigenous Peoples will benefit from improved knowledge of ICU services, and opportunities to voice their needs to improve lived experience.

PARTNERSHIPS

SUPPORTING OUR STAFF: Developing supports to retain critical care healthcare professionals was identified as a priority area by the CC SCN Core committee. The COVID-19 pandemic has negatively impacted the mental health and psychological wellbeing of critical care healthcare professionals (HCP). As a result, HCP are experiencing unprecedented levels of exhaustion, burnout, anxiety, depression, stress, and moral distress, which has led to an increase in workforce turnover. The objective of this program of research is to support health system transformation and HCPs by 1) identifying existing resources to support HCPs mental health and psychological wellbeing; 2) identifying influencing factors and environmental barriers that affect the mental health and psychological wellbeing of the critical care workforce; and 3) to develop comprehensive supports to retain critical care HCPs.

During this past year, the CC SCN began an environmental scan, that will identify and synthesize existing psychological wellbeing resources (e.g. moral distress, burnout, depression, anxiety, stress) for adult ICU HCPs across Alberta. The impact of this research will be to positively affect HCPs, the work environment, and ultimately patient care.

CLINICAL BEST PRACTICES: A number of clinical best practice programs are supported and/or lead by the CC SCN. These include: Dialyzing wisely, Don't Misuse My Blood, Venting Wisely and Reducing Sedation and Analgesia.



DIALYZING WISELY (DW) - DW is a PRIHS-funded study led by Dr. Oleksa Rewa (University of Alberta), that aims to improve the performance of acute Renal Replacement Therapy (RRT) in ICUs by aligning care with evidence-based best practices. The objective is to reduce the number of patients requiring long-term/chronic dialysis, and therefore, improving the quality of life for patients and families, while enhancing health system efficiency and substantially decreasing health care expenditures. The innovative clinical pathway is a tool to aid prescribers starting RRT in the ICU setting. The pathway includes Key Performance Indicators to measure the quality of dialysis delivery. Implementation of the initiation pathway occurred at the initial pilot site as well as in four other ICUs across the province. Roll-out will continue at the remaining sites in 2023-2024.

DON'T MISUSE MY BLOOD (DMMB) – DMMB is a PRIHS-funded study led by Dr. Daniel Niven (University of Calgary), that targets reducing avoidable daily blood tests and optimizing blood component transfusions, in alignment with current evidence-based guidelines. The initial phase of this project is implementing evidence informed transfusion recommendations; target practices include transfusions of red blood cells, platelets, plasma and fibrinogen in both adult and pediatric ICUs, adult Coronary Care Units (CCUs), and high-risk (cardiac, trauma and vascular) surgical units. The Transfusion Guidelines were developed in 2022-2023 through extensive literature and stakeholder review, with implementation beginning in June 2023.



PARTNERSHIPS



VENTING WISELY (VW) – VW is a HHS-funded study led by Dr. Ken Parhar (University of Calgary), that involves implementation of a comprehensive, evidence informed care pathway for mechanically ventilated ICU patients, emphasizing optimal and appropriate use of life saving therapies such as protective ventilation and prone positioning. In 2022-2023, implementation of the pathway was completed in all adult ICUs in Alberta. Throughout the implementation, sites improved their overall adherence to the Venting Wisely pathway by up to 72%, translating into improved patient outcomes and enhanced health system sustainability.

REDUCTING THE USE OF SEDATION AND ANALGESIC

INFUSIONS IN CRITICAL CARE (ROSA) - ROSA a locally funded study led by Dr. Arabesque Parker (Royal Alexandra Hospital, University of Alberta) aims to drive the appropriate use of sedation and analgesic infusions for adult ICU patients in the Edmonton Zone through a standardized, evidence based, stakeholder-informed guideline. Patient outcomes include a reduction in duration of ventilation, reduced prevalence of delirium, and fewer complications, including outcomes related to deconditioning and weakness. Implementation of the Edmonton Zone guideline has occurred in two sites, with work continuing in 2023-2024.



IMPACTS ON HEALTH AND CARE: System transformation, clinical best practices, and supporting our staff aim to positively impact patient and family care in Alberta ICUs and areas upstream and downstream from critical care. Achieved and anticipated impacts focus on:

- Building relationships with Indigenous Peoples and helping close knowledge gaps in the ICU care needs of Indigenous Peoples.
- Mitigating HCP burnout in the ICU to improve patient, family, and healthcare provider experience and satisfaction.
- Implementing clinical care pathways that improve patient outcomes and enhance health system sustainability.
- Improved accountability and quality of care through use of key performance indicators and audit and feedback.

WHAT'S NEXT? ACTIONS AND AREAS OF FOCUS:

- Implementing clinical best practices to optimize care and improve patient safety and outcomes for critically ill Albertans.
- Hosting an interdisciplinary quality, innovation, and research forum to showcase local initiatives of ICU care teams across Alberta (planned for Sept 2023).
- Reducing unwarranted variation and supporting sustainability of critical care resources.

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
Bridging Hearts and Minds

Canadian Vigour Centre (CVC):

Dr. Sean van Diepen serves on the executive.

Cardiac Critical Care Trials Network

Dr. Sean van Diepen serves on the Board of Directors.

Critical Care Cardiology Trials
Network (CCCTN)



LOGIC
LINKING OF GLOBAL INTENSIVE CARE

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 leading role in the Canadian Sepsis Research Network, in partnership with the CCCTBG.



Sepsis Canada
Suspect sepsis. Save lives. Support recovery.

DEPARTMENT HISTORY

The History of Critical Care Medicine at the University of Alberta and Alberta Health Services, Edmonton Zone

The concept of developing critical care medicine in Edmonton was the brainchild of Dr. Brian Sproule, a pulmonologist who had participated in the care and mechanical ventilation of patients during the polio epidemic of 1953. He arranged for Dr. Garner King to train in pulmonary and critical care. On his return from Denver, Dr. King set up one of the first multisystem intensive care units in Canada at the University of Alberta Hospital.

Initially, critical care medicine was a component within Dr. King's academic home, the Division of Pulmonary Medicine. However, over time, it became clear that critical care medicine had practitioners who had varied backgrounds in Anesthesia, Surgery, Emergency Medicine and other medical specialties.

1985

Division of Critical Care Medicine is established under Dr. King as an Inter-departmental Division of the Faculty of Medicine

Dr. Tom Noseworthy takes over from Dr. King as the Divisional Director.

1987

1989

Dr. Noseworthy is appointed as the President of the Royal Alexandra Hospital. Dr. Rick Johnston is appointed as Divisional Director

The Capital Health Authority creates the clinical Department of Critical Care Medicine, Dr. Noel Gibney is selected as the Regional Program Clinical Department Head.

1995

2002

Dr. Gibney, is appointed as Divisional Director. This allows the academic division and the clinical department to merge their vision, mission and goals.

Dr. David Zygun assumes the role as Division Director and Clinical Department Head

2012

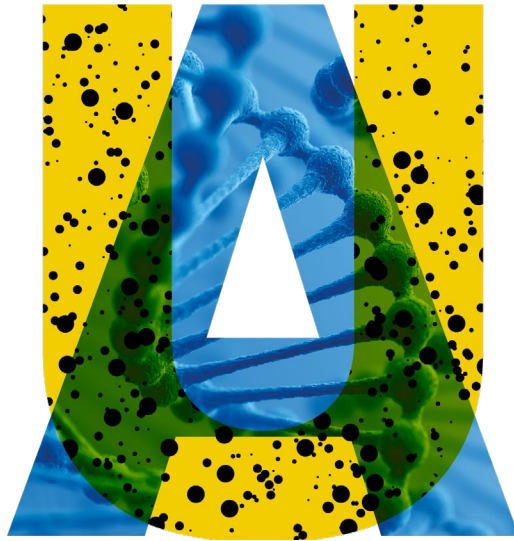
2016

Dr. Richard Fedorak, Dean of the Faculty of Medicine and Dentistry, announces the creation of the Department of Critical Care Medicine with Dr. David Zygun as the first chair.

Dr. Sean Bagshaw named Academic Chair of the department and Dr. Shelley Duggan named as the new Clinical Department Head, Edmonton Zone.

2017

AWARDS AND RECOGNITION



2022-23 INTERNAL AWARDS



Mentor of the Year – Arabesque Parker

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



Best Paper of the Year – Dr. Vincent Lau

This annual award recognizes physician members within the department 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 calendar year.



Teacher of the Year (Junior) Resident Award – Dr. Sandy Widder

This annual award recognizes physician members who have demonstrated commitment to high quality education for our rotating residents. The recipient of this award is chosen by junior residents rotating through the ICU's at UAH and RAH.



Teacher of the Year CCM (Senior) Resident Award – Dr. Brian Buchanan

This annual award recognizes physician members who have demonstrated commitment to high quality education for our senior critical care residents. The recipient of this award is selected by our CCM trainees.

AWARDS AND RECOGNITION



Dr. Dan Stollery Award for Clinical Excellence - Dr. Derek Townsend

This annual award is designed to acknowledge and recognize a physician within the department whose exceptional contributions to clinical practice and commitment to excellence goes above and beyond the norm.



Dr. Richard Johnston Award for Distinguished Service to Critical Care Medicine - Dr. Mark Huele

This annual 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 - Dr. Oleksa Rewa

This annual 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.

2022-23 EXTERNAL AWARDS



Dr. Curtis Johnston
Queen Elizabeth II Platinum
Jubilee Medal



Dr. Darren Markland
Queen Elizabeth II Platinum
Jubilee Medal



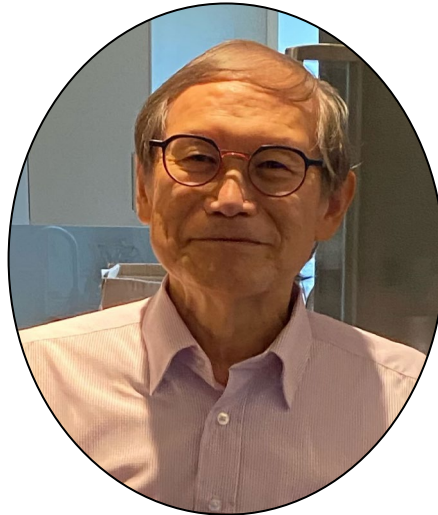
Dr. Janek Senaratne
Undergraduate Medical
Education (UGME) Teacher of the
Year Award



Dr. Warren Luksun
Stellar at the Surgeon
Professionalism and Excellence
award

THE DR. WU DAT NIN CHIN SCHOLARSHIP IN CRITICAL CARE MEDICINE

INAUGURAL 2023 AWARD



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.

2023 Recipients

Sebastian Kilcommons

Research Project:

“EXIT-ICU - Examining Internal and External Influences Leading to Health Care Worker Turnover in ICUs during the COVID-19 Pandemic”

Ashley Turner

Research Project:

“Environmental Scan of Indigenous Resources and Culturally Specific Tools across ICUs in Alberta”

INTRODUCING: THE CRITICAL CARE COMMUTE



The [Critical Care Commute](#) is a podcast produced, recorded and edited by Drs. Peter Brindley and Leon Byker. The podcast's goal is to let the widest range of experts talk about the widest range of topics relevant to critical care medicine, and to shine light on local faculty's expertise and research.

Since our launch in October 2022, the Commute has produced 29 podcasts with just under 10, 000 downloads. The Commute has listeners from 68 countries with an audience size of 427, which seems to grow with every podcast publication. Drs. Brindley and Byker recorded 20 podcasts at the State of the Art Congress in Birmingham, UK, as invited speakers and began releasing them in the summer of 2023 as part of the Commute's second season.

RESEARCH AND INNOVATION



Dr. Oleksa Rewa
[Director, Research and Innovation](#)

Message from the Director

The 2022-2023 Academic Year was a productive year for the department as we were able to exit the pandemic and return to activities conducted previously.

Members of the department continued to participate in and produce high quality research, lead scholarly activities, and secure ongoing research funding. Further, as critical care meetings resumed, department 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 peer-reviewed journals. These successes will be highlighted later in the Annual Report.

In addition to the successes of our current department members, we have been successful in recruiting two new department members to continue to build our academic mission. Dr. M. Elizabeth Wilcox is joining us from Toronto Western Hospital in Toronto, Ontario, as our new Director in the University of Alberta Hospital Neurosciences ICU. She brings with her academic focus on long-term cognitive outcomes after critical illness, patient safety, quality improvement and organization of critical care services that will help to continue to grow and develop the Neurosciences ICU and post-ICU care. Dr. Fernando Zampieri has joined us from the Hospital for the Heart and the HCOR Research Institute in Sao Paulo, Brazil. Dr. Zampieri has over 150 peer-reviewed publications, has led the multicenter BaSICS RCT evaluating balanced solutions, and brings with him a wealth of statistical experience that will greatly complement current academic work within the department. With these new members joining the department, we are well positioned to continue to advance our academic mission.



RESEARCH DAY MAY 10, 2023

Finally, we have again held a combined Pediatric and Adult Critical Care Medicine Research Day on May 10th. The Research Day was held as a hybrid event, with both virtual and in-person options being available. It was a great opportunity for our trainees to present their work, and hear from two nurse researchers, Dr. Carmel Montgomery and Matthew Douma, presenting on their experiences with conducting research with physicians.

The event was attended by over 50 trainees and Faculty across the two departments, with most attendees choosing to participate in person.

In the Research Competition, Dr. Shaun Cowan won first place for his work on, 'Emergency Cricothyrotomy Landmarking – Validating the Canadian Method of Cricothyroid Landmarking.'

Second place went to Dr. Brittany Kula for her work on, 'COVID-19-Associated Pulmonary Aspergillosis and Invasive Mold Infection: A Review of the Incidence and epidemiology in Critically Ill Patients in Alberta.'



Research Day Organizers and Award winners: Rashid Alobadi, Jacqueline Harrison, Shaun Cowan, Brittany Kula, Oleksa Rewa



Research Day Keynote Speakers: Matthew Douma and Carmel Montgomery

And third place was won by Dr. Jacqueline Harrison with her program evaluating, 'Total Plasma Exchange in Pediatric patients with Severe Sepsis Requiring ECMO Support.' A special thank you to Dr. Vincent Lau who served as our guest judge for the research competition.

This was a fantastic collaboration between the two departments where the multidisciplinary nature of our trainees' research was highlighted, and we look forward to next year's Critical Care Medicine Research Day on May 15th 2024.



RESEARCH PUBLICATIONS

total publications:

publications with department faculty as first or senior author: 180

publication with trainee as first author: 1

publications in high impact journals 48

Full list of research publications can be found in the Appendix on page 45.

FEATURED PUBLICATION



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, KustogiannisDJ, 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 Mar 27. doi:10.1097/CCM.0000000000005848. Epub ahead of print. PMID: 36971440.

RESEARCH GRANTS

Total New Funding: \$720 454.50

Full list of research grants can be found in the Appendix on page 64.

FEATURED RESEARCH GRANT

Investigator: Dr. Constantine Karvellas (PI)

Title: 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 controlled trial

Funder: Canadian Institutes of Health Research (CIHR)

Funding Year: 2022

Award: \$348, 075.00

VISITING SPEAKERS



The R.T. Noel Gibney Lecture in Critical Care Medicine Dr. David Cooper MD MPH

April 18, 2023

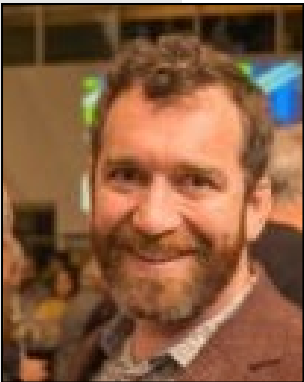
Title: High reliability teams, shared decision making and innovative care in the ICU

David Cooper MD, MPH is board certified in Pediatrics, Pediatric Cardiology and Pediatric Critical Care. He is currently the Medical Director of the Heart Institute and Cardiac Intensive Care Unit at Cincinnati Children's Hospital Medical Center. For the last 19 years, his career has focused on the care of critically ill neonates, infants, children, and adults with complex congenital heart disease with a particular interest in how care in the intensive care unit can impact morbidity. His research work has focused on anticoagulation, extracorporeal support, acute/chronic kidney injury, teamwork and performance and patient outcomes. Dr. Cooper is the co-editor of the textbook Critical Heart Disease in Infants and Children, 3rd Edition. Dr. Cooper is the President of the Pediatric Cardiac Intensive Care Society. He served as a founding member (Executive Committee) of the Pediatric Cardiac Critical Care Consortium (PC4) and the founding chair of the Database Committee (including development of the CICU database). Dr. Cooper is the Institutional, Societal and Industry Relations Chair for the 2023 8th World Congress of Pediatric Cardiology and Cardiac Surgery.

2023 Research Day Keynote Speakers

May 10, 2023

Title: Redefining nurse-led critical care research in Edmonton



Matthew Duma is a Registered Nurse and Resuscitation Scientist in Edmonton. AHS employs him as a Provincial Emergency Nurse Educator and he holds an adjunct appointment with the department. His doctoral studies at the University College Dublin focus on family-centredness during cardiac arrest care. He is also a resuscitation guideline author with the American Heart Association, a Resuscitation Advisory Council member with Heart and Stroke Canada, and editor-in-chief of the Canadian Journal of Emergency Nursing.

Carmel Montgomery is a Registered Nurse and Assistant Professor with the Faculty of Nursing at the University of Alberta. She completed doctoral studies in the DCCM focused on outcomes of critical illness in patients with preadmission frailty, followed by a postdoctoral fellowship at the Institute of Health Economics. Currently, she is evaluating the impact of two clinics for ICU patients in the Edmonton Zone - the NP-led follow up clinic for adult cardiac surgery patients at the Mazankowski Heart Institute and the physician-led ICU Survivorship Clinic at the Misericordia.



EDUCATION



Dr. Adam Romanovsky
[Director, Education](#)

Anesthesiology U of M, Dr. Heather Perry, Internal Medicine Memorial University. We are also excited to welcome Dr. Zahraa Habeeb who is a sponsored trainee from Kuwait and completed her IM and Nephrology training at the University of Alberta.

In an effort to increase ventilation teaching, we held our second annual ventilation workshop which was universally well received by trainees and supported by a cast of engaged faculty members. The involvement of Respiratory Therapy educators from NAIT also highlighted the multidisciplinary collaboration that helps us provide optimal training experiences. This was further demonstrated this year by the addition of a one-week Respiratory Therapy rotation for all CCM1 residents at the UAH GSICU. This new rotation was highly regarded by both CCM trainees and the respiratory therapists. We also welcomed back a former trainee, Dr. Sarah Andersen, who has now completed a master's degree in Bioethics, to lead our inaugural education day on clinical ethics and clinical decision making. This was an interactive full day session which generated excellent discussion and was a unique and rewarding educational experience for both learners and faculty.

Last year also saw growth of our rotating resident training portfolio as the Royal Alexandra Hospital expanded capacity and added a second teaching team. In addition, we have worked with the Internal Medicine program to introduce a new R1 elective in CCM which we anticipate will be highly sought after. This will help residents develop fundamental acute medicine skills earlier in training and provide trainees exposure to the idea of critical care medicine as a career earlier in training.

Not to be forgotten is the continued success of our fellowship programs. After a five-year hiatus we trained our second Cardiology ICU fellow in two years and have already secured another fellow for the 2023-24 academic year and two more fellows for the 2024-25 academic year. We are very pleased that Dr. Rabia Kashur, who completed his Cardiology ICU fellowship in June will be joining the Department of Cardiology at the University of Alberta and will serve as an ambassador for future trainees. Our CVICU fellowship has also drawn increased international attention as we were able to offer training to Dr. Matthew Schroyens from Belgium.

Message from the Program Director

The 2022-23 academic year saw the COVID-19 pandemic fade, allowing critical care units and the program to return to a more normal atmosphere. All educational events returned to in-person which also allowed for an increase in social events and program comradery amongst the trainees. Although everything transitioned back to in-person, a positive holdover from the pandemic has been the use of virtual meeting platforms which have allowed trainees to participate in educational activities even when on electives in different locations in Canada and around the world.

The core program continues to grow and expand the academic curriculum to help ensure the success of our trainees as they begin their careers in critical care training. We welcomed three new fellows to fill all our CaRMS training positions beginning July 1, 2023: Dr. Josh Butcher, Emergency Medicine U of S, Dr. Jay Gorman,



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 and Royal Alexandra Hospitals) were nominated for departmental teaching awards, highlighting the broad impact of our clinician teachers.

POSTGRADUATE MEDICAL EDUCATION

Faculty of Medicine and Dentistry, College of Health Sciences, University of Alberta

I was appointed PGME Associate Dean in January 2021. In this role, I spend my time supporting our 70 residency program directors in the Family Medicine, Family Medicine-enhanced skills, and Royal College specialty and subspecialty residency programs. For example, along with Drs. Anna Oswald, Alicia Strand, and others in the PGME office, we help programs implement the educational paradigm known as Competence by Design (CBD). We oversee the necessary IT infrastructure, provide faculty development and other resources, and are currently developing a process to ensure high quality decision-making and function of our residency programs' competence committees. To date, CBD has rolled out to 52 of our Royal College residency programs and the rest will implement CBD over the next few years.

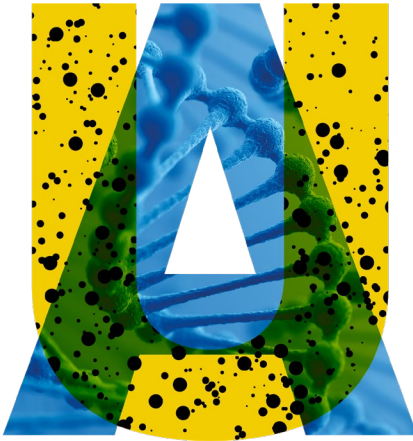
In addition, I oversee the budget that administers residency education and serves as the main interlocutor that communicates with stakeholders within and external to the University regarding issues affecting residency education. I help navigate complex issues within residency programs, provide orientation and mentorship to new residency program directors when change over occurs, and help residency programs implement and maintain processes for program quality improvement so that they meet their accreditation and curricular requirements. The next two years will be particularly busy in this regard as I help prepare all of our residency programs and PGME institutions for the joint College of Family Physicians-Royal College of Physicians and Surgeons accreditation visit in the fall of 2025.

Lawrence Cheung, MD, FRCPC

Associate Dean, [Postgraduate Medical Education](#)

Professor, Departments of Medicine and Critical Care Medicine

EDUCATION LEADERSHIP



Adult Critical Care Residency Program

Dr. Adam Romanovsky - Program Director

Critical Ultrasound (CCUS) Clinical Fellowship

Dr. Brian Buchanan - Fellowship Director

Critical Care Cardiology Fellowship

Dr. Janek Senaratne - Fellowship Director

Cardiovascular Intensive Care (CVICU) Fellowship

Dr. Aws Alherbish - Fellowship Director

Neuroscience Intensive Care Unit (Neuro-ICU) Fellowship

Dr. Monica Henry - Fellowship Director



CRITICAL CARE TRAUMA CLUB

Lectures via Zoom provided by Drs. Dennis Djogovic and Vincent Lau included:

- (1) Orientation to the ICU for medical students
- (2) Introduction to toxicology
- (3) Introduction to trauma

And finally, we held the first in-person hands-on skills night, teaching medical students about vascular access, point-of-care ultrasound and airway management.

Thanks to all the faculty and the medical students who made this year a success. Looking to build on this success for next year!

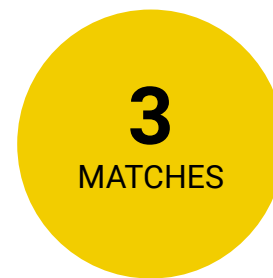
6 Adult Critical Care Residents

1 CVICU Fellow

1 Cardiology Fellow



CaRMS 2022



2022-23 EDUCATION EVENTS

Academic Half Day (including simulations - July 13, 20, Sep 7, Nov 16 Jan 18, Apr 26)

Covering 70 topics over the course of the academic year

Other Activities:

- CCM Year One Orientation - July 4
- N-ACES Course - July 6-8
- BLS/ACLS - Course July 16
- CRUS West Course - Aug 12-13
- Resident Wellness Day - Aug 25 and Feb 23
- CaRMS - Sept 28
- Royal College of Physicians and Surgeons Critical Care Medicine Exam - Sep 19-20
- Journal Club - Sept 20, Dec 6, Feb 21 and May 16
- International Applicant Interviews - Sep 2
- Critical Care Canada Forum - Nov 23-25
- In Training Exam - Dec 14 and May 17
- ASICP - Jan 19-22
- Multidisciplinary Critical Care Knowledge Assessment Program - April 5
- Research Day - May 10
- Objective Structured clinical Examination - May 31

CRITICAL CARE ULTRASOUND



Dr. Brian Buchanan
[Director, Critical Care Ultrasound](#)

Message from the Director

Critical Care Ultrasound (CCUS) is the application and interpretation of ultrasound at the point-of-care by advanced practitioners in critical care medicine. CCUS plays a central role in detecting and managing a variety of life-threatening illnesses from shock to volume status. CCUS has become a fundamental skill within the specialty of critical care and dedicated interest in CCUS education and research have offered exciting new venues of study and personal growth. In the next couple of years, there will be a steady march towards “professionalization” within Alberta that is transforming this skill set into one with greater recognition, higher standards, and increased credibility as we look to bring CCUS officially into the medical record with image and report archiving.

Visit: <http://www.AlbertaSono.ca/>

Education

2022-2023 was a bustling academic year for the CCUS program. In fall 2022, our CCUS fellow, Laz Milovanovic, completed his fellowship training and began work as an intensivist at the Misericordia Community Hospital. This year also saw the education of 21 rotators through the critical care ultrasound rotation and continuation of the monthly ABSono Ultrasound rounds. In addition to educational endeavors, we have also participated 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, work has been done in the medicine SCN in creating an inter-disciplinary approach to setting standards in point-of-care acquisition and assessment. Both projects will bring about substantive change to the performance and interpretation of critical care and point-of-care ultrasound.

Research

In 2021, we saw the initiation and publication of several research projects. Work has begun on a partnership between critical care, cardiology, radiology, and EXO imaging in developing an automated machine-learning based approach to measuring ejection fraction. Further, 2023 saw the beginning of medical education research in dedicated faculty training; this will be one of few investigations to explore such models. Next, we also saw the publication of a systematic review in shunt prevalence in Covid-19, and Covid-shunt, a first-of-its kind point-of-care study for shunt interrogation in patients with covid-19 related respiratory failure, led by Dr Vincent Lau. Finally, the General System ICU continues to participate in an international registry of trans-esophageal echocardiography in acute care and this has produced several abstracts and a publication that is currently under peer review.

CANADIAN RESUSCITATIVE ULTRASOUND COURSE (WEST)



In 2022, we continued to deliver cutting-edge training in ultrasound through the Canadian Resuscitative Ultrasound Course (CRUS) West on August 11 & 12th. We welcomed 15 faculty and residents to Western Canada's biggest course in acute care ultrasound training. The course received outstanding reviews and will be held again this year July 4-5, 2023.



SIMULATION



Dr. Janek Senaratne
[Director, Simulation](#)

Message from the Director

The Department of Critical Care Medicine in conjunction with the Faculty of Medicine and Dentistry, University of Alberta, Alberta Health Services, and Covenant Health runs an interdisciplinary, interprofessional, and interhospital simulation program. The simulation program is an integral part of the department's clinical, educational, research, and quality improvement/assurance missions.

Simulation in the Clinical Sphere

In conjunction with both Alberta Health Services and Covenant Health, the Department of Critical Care Medicine runs multi-disciplinary full-team in-situ simulations in all the Critical Care Units in the Edmonton Zone on a regular basis. These involve all members of the clinical team including attending physicians, nurse practitioners, residents, nurses, respiratory therapists, pharmacists, etc. and typically involve multiple high acuity low occurrence

events. The simulation curriculum is designed as a part of regular in-servicing for all staff and serves as an opportunity to work on team skills that are difficult to otherwise learn in non-simulated settings. The simulations occur in-situ with all regular equipment and bedspace being used so as to identify concealed hazards and logistical issues. The simulations regularly involve other non-critical care teams (e.g. surgery, diagnostic imaging, extracorporeal life support, mechanical circulatory support) and often include simulations of the critically ill patient in non-unit environments such as during transportation, the operating room, the radiology department, and the cardiac catheterization laboratory.

Simulation in the Educational Sphere

In conjunction with the Faculty of Medicine and Dentistry, the Department of Critical Care Medicine runs a full simulation program directed towards medical students, residents, and fellows. At the medical student level, the Department of Critical Care Medicine supports simulation for incoming medical students during their Link Block between second and third year with both procedural, point-of-care ultrasound, and theater-based team simulation. Moreover, simulation resources are directed towards first and second year medical students in collaboration with the Critical Care and Trauma Medical Student's Club with early procedural skills. At the resident and fellow level, the Department of Critical Care Medicine runs a full bootcamp for all Critical Care Medicine residents and fellows that include task-trainer procedural simulations, advanced basic life support and advanced cardiac life support courses, as well as a longitudinal annual full-team in-situ simulation curriculum that takes place in the critical care units. This is supplemented with specific ventilation, hemodynamics/mechanical circulatory support, and renal replacement therapy bootcamps on an annual basis. The Simulation curriculum is built within the framework of the Royal College of Physicians and Surgeons Competence-by-Design (CBD) program allowing for the achievement of Entrustable Professional Activities (EPAs) within simulated environments.

Simulation in the Research Sphere

Given the expertise of the Department of Critical Care Medicine in Simulation, our faculty are engaged in both primary and secondary research specific to simulation. Primary simulation studies look at simulation and its effects pre/post- implementation on staff, resident, and student learning, expertise, procedural competence, and efficiency. The faculty has also been engaged in writing position papers on Simulation and its need in the modern Critical Care Unit. We are also involved in innovation with our collaboration with eSIM with the design and building of new in-house simulators to increase the fidelity of simulation.



Simulation in the Quality Improvement and Quality Assurance Sphere

Simulation is an integral part of the continuous circle of Quality Improvement as one potential tool that can be used in modern health care systems to improve systems processes as well as patient safety. The Department of Critical Care Medicine has made Patient Safety and Quality one of its forefront missions with several faculty having specific training in this area. Simulation goes hand-in-hand with the process of Quality Improvement and allows for training and assessment in a low-risk environment that simulates the very high-risk landscape of critical care. The Department of Critical Care Medicine also uses simulation as a part of Alberta Health Services' Quality Assurance Reviews as a potential tool to allow for measurable change of the health care system for complex systems and patient interactions. Finally, as a part of our goal to improve all health care delivery, the Department of Critical Care Medicine has provided simulation instruction training to other divisions and departments to build leaders in those areas to build their own robust simulation programs.

APPENDIX

RESEARCH PUBLICATIONS

Publication Summary:

total publications: 180

publications with department faculty as first or senior author: 34

publications with trainee as first author (*italics*): 1

Publications in High Impact Journals

publications in BMJ:16 [IF 93]

publications in JAMA:20 [IF 157]

publications in Intensive Care Medicine: 11 [IF 40]

publications in NEJM: 1 [IF 176]

COVID-19 Publications highlighted with a

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2. Vaara ST, Bhatraju PK, Stanski NL, McMahan BA, Liu K, Joannidis M, **Bagshaw SM**. Subphenotypes in acute kidney injury: a narrative review. *Crit Care*. 2022 Aug 19;26(1):251. doi: 10.1186/s13054-022-04121-x.
3. Wald R, Beaubien-Souligny W, Chanchlani R, Clark EG, Neyra JA, Ostermann M, Silver SA, Vaara S, Zarbock A, **Bagshaw SM**. Delivering optimal renal replacement therapy to critically ill patients with acute kidney injury. *Intensive Care Med*. 2022 Oct;48(10):1368-1381. doi: 10.1007/s00134-022-06851-6. Epub 2022 Sep 6.
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Council on Cardiovascular and Stroke Nursing; Council on Peripheral Vascular Disease; and Council on Cardiovascular Surgery and Anesthesia. Escalating and De-escalating Temporary Mechanical Circulatory Support in Cardiogenic Shock: A Scientific Statement From the American Heart Association. *Circulation*. 2022 Aug 9;146(6):e50-e68. doi: 10.1161/CIR.0000000000001076. Epub 2022 Jul 7.



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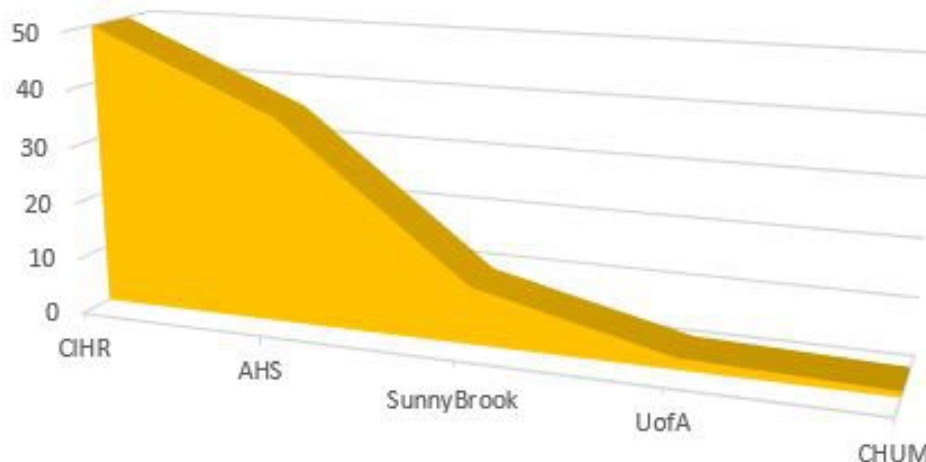
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DEPARTMENT GRANTS

2022-23 Grants



Manager	Description	Award Start Date	Award End Date	Funds Available Before Commitments	Sponsor
Bagshaw,Sean	Critical Care SCN 2022-2023 Seed Grant Awards	12/1/2022	5/31/2025	\$30,000.00	Alberta Health Services Critical Care Strategic Clinical Network
Bagshaw,Sean	Critical Care Knowledge Translation and Priority Projects	1/1/2023	12/31/2025	\$232,748.00	Alberta Health Services Critical Care Strategic Clinical Network
Bagshaw,Sean	High-Flow Nasal Oxygen with or without Helmet Non-invasive Ventilation for Oxygenation Support in Acute Respiratory Failure (HONOUR) Pilot RCT (ID43012)	2/17/2023	12/31/2025	\$4,800.00	Sunnybrook Research Institute
Lau,Vincent	Examining Internal & External Influences Leading to Health Care Worker Turnover in ICUs During the COVID-19 Pandemic: EXIT-ICU Study	5/1/2023	4/30/2024	\$15,000.00	University of Alberta
Lau, Vincent	Economic Evaluation of Remdesivir Alongside the Canadian Treatments for COVID-19 trial (E-CATCO) – under the Canadian arm WHO SOLIDARITY Therapeutics Trial	4/5/2022	12/31/2023	\$12,500.00	CIHR Canadian Network of COVID-19 Clinical Trials Networks Grant

Karvellas, Constantine	Intraoperative hemodynamic management and postoperative outcomes in liver transplantation: a multicenter prospective cohort study	10/14/2022	12/14/2025	\$7,331.50	Ctr Hospitalier de l'Univ Montreal(CHUM)
Karvellas, Constantine	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 controlled trial	20 22	20 24	\$348,075.00	Canadian Institutes of Health Research (CIHR)
Rewa,Oleksa	The Canadian Network of COVID-19 Clinical Trials Networks	1/31/2023	3/31/2024	\$70,000.00	Sunnybrook Research Institute



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Dustin Anderson

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Ana Wigger - Medical Education Program Administrator

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Caylin Chadwick - Research Coordinator

Lily Guan - Research Coordinator

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Gayathri Kalathil Prem - Research Assistant

Teresa Lawrence - Research Admin

Dawn Opgenorth - Project Manager

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Tayne Hewer- Research Coordinator

Patrica Thompson - Research Manager

GREY NUNS HOSPITAL RESEARCH OFFICE

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Krista Dewart - Research NP

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Anushka Jayasekara - Research Coordinator

Larissa Johnson - Research RT

Shibi Nambichan Kudy Geroje - Research Charge RN

Isabel Kwek - Research Pharmacist

Harpreet Lehal - Research Unit Clerk

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Mehvash Qureshi - Research NP

Sarah Stauffer - Research NP



CONFERENCES

Alberta Society of Intensive Care Medicine Meeting - CC SCN Research Symposium

January 20-22, 2023

The annual ASICP - CC SCN Research Symposium was held once again at the Post Hotel in beautiful Lake Louise, Alberta on Saturday January 21, 2023.

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 15 very high-quality oral abstract presentations from the University of Alberta and University of Calgary.

First prize for oral abstract presentation went to

Dr. Kevin Ma

"Non-steroidal anti-inflammatories for pain control in the critically ill patients: a systematic review and meta-analysis".

There was a tie for second prize between

Katherine Kissel/Christine Filipek/Jessica Jenkins

"The Impact of a 3-Tiered Model of Nursing Redeployment During the COVID-19 Pandemic: A Cross-Sectional Mixed Methods Study"

Kimberly Tworek

"Neonatal Sepsis and the Long-term Cardiovascular and Metabolic Effects".

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- 4 Postgraduate Residency Program**
Our program offers trainees a unique and comprehensive experience, preparing you not only to be excellent clinicians, but leaders in the field of Critical Care Medicine.
- 5 Department Members**
Our faculty members are divided by their academic appointments with the University. Our faculty are located throughout the Edmonton area in order to deliver the very best patient care to the city and its surrounding areas.



Total # of posts

129

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DATE	PRESENTER	TITLE
6-Sep-22	Dr. Ken Parhar	Venting Wisely: A care pathway for Patients with Respiratory Failure requiring Mechanical Ventilation
13-Sep-22	Dr. Ron Brisebois Rainbow Tin	An overview of the American College of Surgeons National Surgical Quality Improvement Program (NSQIP) at the University of Alberta Hospital
4-Oct-22	Dr. Marat Slessarev Dr. Angela Jerath	Innovation in the time of the pandemic
11-Oct-22	Dr. Vince Lau	Right-to-left shunts in ARDS patients (review of ARDS Shunt Systematic Review & Meta-Analysis and COVID Shunt Study results)
25-Oct-22	Dr. Dennis Djogovic	Organ donation and the ICU
1-Nov-22	Dr. Darren Hudson	Can I get my data before the machines take over?! Understanding data in Connect Care and a Primer on Artificial Intelligence.
8-Nov-22	Dr. Gord Boyd	Thinking beyond survival: The neurological complications of critical illness
29-Nov-22	Dr. Madeleine Bohrer	Acute Drug Overdoses and Intoxications in the ICU
13-Dec-22	Dr. Michal Chwalek Dr. Brittany Kula Dr. Nicholas Quigley	Quality Rounds
10-Jan-23	Dr. Shaun Cowan	Performing Under Stress - Optimizing Teams Starting with Ourselves
17-Jan-23	Dr. James Lee	Critical Care During A Humanitarian Crisis
24-Jan-23	Dr. Ayush Lacoul	Super refractory status epilepticus
31-Jan-23	Dr. Brittany Kula	Respiratory viruses in the ICU
7-Feb-23	Dr. Peter P. Roeleveld	Is there a place for ECMO-CPR in adult and pediatric resuscitation?
14-Feb-23	Dr. Mark Sanderson	Neurotoxicology: Biochemically beleaguered brains
21-Feb-23	Dr. Rachel Jeong	Acute Kidney Injury in the Intensive Care Unit: Current and Future Directions
14-Mar-23	Dr. Paige Burgess	Evidence-informed practices for the use of Simulation Education in Critical Care: Insights for Teachers and Learners
21-Mar-23	Dr. Claire McNiven	Mystery Case Files: Pericardial Effusion
4-Apr-23	Dr. Andrea Davenport	In-Hospital Cardiac Arrest: An Update
11-Apr-23	Dr. Nicholas Quigley	Reviewing several ICU practices: are they all optimal?
18-Apr-23	Gibney Lecture Dr. David Cooper	High reliability teams, shared decision making and innovative care in the ICU
25-Apr-23	Dr. Amelie Cyr	Inhaled Anesthetics in Critical Care
2-May-23	Dr. Samuel Stewart	Equivalence: Is it better to Withhold than Withdraw?
9-May-23	Dr. Rabia Kashur	Cardiogenic shock: Management of the underestimated side
16-May-23	Dr. Michal Chwalek	Hemodynamics in Sepsis
30-May-23	Dr. Andrea Davenport Dr. Mark Sanderson	Quality Rounds
6-Jun-23	Dr. Dalal Al Thubaiti	How to Start an ECMO Program
13-Jun-23	Dr. Jacqueline Harrison	When on ECMO, When Does Palliative Care Play a Role



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