



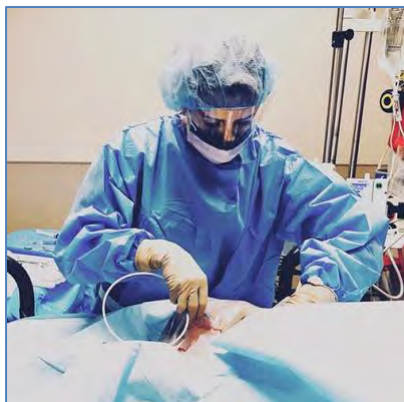
## Department of Medicine 2021 Annual Report Division of Critical Care

### Divisional Overview:

The UBC Division of Critical Care Medicine is multi-disciplinary in nature with 53 faculty members and 20 Associate and Joint appointment members. Our members are qualified critical care specialists with medicine, surgery, anesthesiology, and emergency medicine backgrounds. They are leaders in patient care throughout the province of British Columbia. Our members serve on the front lines, caring for patients with the highest degree of illness, at incredible sacrifice to themselves and their families.

The Critical Care Medicine Members continue to make contributions in education, research, and clinical care, despite the challenges of the pandemic. Clinical, research, educational, and administrative collaborations among the hospital sites have increased over the past few years and are expected to continue. We will continue to examine and adopt innovative clinical approaches and technologies to improve the care of critically ill patients (e.g., ECMO, echocardiography, ultrasound, computer support/monitoring, checklists, novel methods of cardiac/pulmonary support and neurocritical care). Our Division members hold key leadership positions across our province and nationally.

**Division Head: Dr. Cheryl Holmes**, Clinical Professor and Head of the UBC Department of



Medicine's Division of Critical Care also serves as Associate Dean for the MD Undergraduate Program at UBC. She trained in Internal Medicine and Critical Care at UBC and practiced critical care medicine at Kelowna General Hospital (KGH) until 2018, where she was involved in clinical education of medical students, residents, and fellows in the ICU.

As Head of the Division of Critical Care, she is responsible for academic leadership of clinical care, education and research in critical care. Dr. Holmes's research interests are in the student voice and the hidden curriculum; the patient voice in the learning environment, advancing equity and diversity in medical education and leadership; and Indigenization of the medical curriculum.

### Key Successes:

#### 1. *Leadership during the COVID-19 Pandemic:*

Our members continued to provide strong clinical, research, and administrative leadership during the challenging second year of the pandemic. As the public grew weary and frustrated amidst lockdowns and vaccine mandates, our Division members doubled down with resilience and resolve.

##### National and International Leadership:

- Dr. Najib Ayas, Head of the Guidance Committee for Sleep and Disordered Breathing at the Canadian Thoracic Society
- Dr. Vinay Dhingra, Organizing Committee for the Canadian Critical Care Conference; Organizing Committee for World Critical Care Congress for Vancouver 2021.

- Dr. Cheryl Holmes, Undergraduate Deans Committee, Association of Faculties of Medicine Canada (AFMC) and Board Member of the Canadian Residency Matching Service (CaRMS) and Committee for Accreditation of Canadian Medical Schools (CACMS).
- Dr. Sean Keenan serves on the national committees: Deceased Donation Advisory Committee with Canada Blood Services, and the Organ Donation and Transplant Committee (ODTC) for Deceased Donation for Health Canada
- Dr. Adam Peets, Chair, Critical Care Competence Committee, Royal College of Physicians and Surgeons of Canada, Chair, TLEF Review Advisory Council, Faculty of Medicine, UBC and Member, UBC PGME Review Committee, Office of Postgraduate Medical Education, UBC
- Dr. David Sweet, World Sepsis Day Steering Committee.

#### Provincial Leadership:

- Dr. Michael Christian, Chief Medical Officer, BC Emergency Health Services at PHSA.
- Dr. Morad Hameed, Head of the VGH and UBC Divisions of General Surgery
- Dr. Hussein Kanji, Senior Medical Director, Health Emergency Management British Columbia (HEMBC) Provincial Clinical Lead, Critical Care Medicine, BC Patient Safety and Quality Council
- Dr. Sean Keenan, Provincial Medical Director, BC Transplant
- Dr. Anish Mitra, Chair, Provincial COVID-19 High-Flow Oxygen Guideline Committee
- Dr. Myp Sekhon, Adult CCM Training Program Director and VGH Site Director
- Dr. David Sweet, British Columbia COVID-19 Therapeutics Committee (CTC)- Chair, Provincial Clinical Lead Sepsis with the BC Patient Safety and Quality Council

#### Fraser Health

- Dr. Greg Haljan, Regional Medical Director for Research Fraser
- Dr. Rob McDermid, Chair of the Fraser Health Authority Medical Advisory Committee (HAMAC) and Fraser Health Rep on Joint Academic Advisory Committee UBC/FHA
- Dr. Anish Mitra, Fraser Health Authority COVID-19 Pre-Printed Order Committee

#### Abbotsford Regional Hospital:

- Dr. David Liu, Department Head for Critical Care

#### Richmond Hospital:

- Dr. Greg Martinka, Medical Director Critical Care Richmond Hospital

#### Royal Columbian Hospital:

- Dr. Rob Sharp, ICU Medical Director
- Dr. Derek Gunning, ICU Education Lead
- Dr. Rob Sharpe, CSIC Co-Medical Director
- Dr. Derek Gunning, CSIC Co-Medical Director
- Dr. Nori Bradley, Site Medical Director for Organ Donation

- Dr. Sean Keenan, RCH Medical Quality Lead

#### Surrey Memorial Hospital

- Dr. Harry Brar, Medical Director, Critical Care at Surrey Memorial Hospital
- Dr. Greg Haljan, Site Medical Director for Surrey Memorial Hospital and Jim Pattison Outpatient Care and Surgery Centre
- Dr. Anish Mitra, Surrey Memorial Hospital ICU Director of Research

#### Interior Health and Kelowna General Hospital:

- Dr. Ryan Foster, Medical Director Critical Care Interior
- Dr. Vik Chaubey, Medical Director Critical Care Kelowna General Hospital and Nighttime Code Blue and Airway Response Service

#### Kootenay Boundary Hospital

- Dr. Scot Mountain, Medical Director Critical Care Kootenay Boundary Hospital

#### Providence Health and St. Paul's Hospital

- Dr. John Boyd, CRRT and ECHO Lead, Providence Health.
- Dr. Demetrios Sirounis, Critical Care Medicine Head, Providence Health Care, ICU Physician Program Director, Providence Health Care
- Dr. Keith Walley, Associate Director St. Paul's Hospital ICU and Assistant Head Research, PHC Department of Medicine
- Dr. Ruth MacRedmond, Physician Lead, High Acuity Unit and Critical Care Outreach Team
- Dr. Ken Kaila, Physician Lead, Mount St. Joseph's Hospital
- Dr. Adam Peets, Adult CCM Training Program, St. Paul's Hospital Site Director

#### Vancouver Coastal and Vancouver General Hospital

- Dr. Dean Chittock, Vice President, Medicine, Quality and Safety
- Dr. Vinay Dhingra, Senior Medical Director Vancouver Acute Services and Physician Lead for Clinical and Systems Transformation (CST) at VCH-Vancouver (including VGH, UBC, GF Strong and 150 ambulatory clinics); Associate Chief Medical Information Officer (ACMIO) at CST,
- Dr. Demetrios Sirounis, Regional Program Medical Director, Critical Care Medicine, Vancouver Coastal Health
- Dr. Gord Finlayson, ICU Medical Director
- Dr. George Isaac, Director ECMO Program, Vancouver General Hospital
- Dr. Hussein Kanji, Medical Director, QA/QI Critical Care Services, Vancouver Acute, Co-Director ECMO Program and Medical Director High Acuity Unit, Vancouver General Hospital
- Dr. Bill Henderson, Medical Site Leader, UBC Hospital

#### Vancouver Island Health Authority

- Dr. Daniel Ovakim, Co-Chair, Island Health Authority, Code Blue/Cardiac Arrest Committee

2. *UBC Division of Critical Care Mission, Goals and Website:* In 2021, we achieved consensus of our goals and completed a complete renovation of our website <https://ubccriticalcaremedicine.ca>, with information that celebrates and supports our division members in education, clinical care and research.

**Mission Statement:** The UBC Division of Critical Care is a collaborative and multi-faceted academic division with provincial scope and global reach. We provide:

- Culturally safe and quality-driven clinical care;
- Inclusive and transparent academic leadership;
- Innovative and collaborative basic, clinical, and health services research in many areas including sepsis, respiratory failure, extracorporeal life support, and neuro-critical care”
- Critical care education across the continuum.

We serve the diverse populations of British Columbia and beyond, providing the best critical care possible to patients and communities along the continuum of care in quaternary, tertiary, regional, community and rural and remote settings.

3. *Our Division members continued to provide outstanding teaching and mentoring of trainees during the worst of the pandemic*



Drs. Keith Walley and Demetrios Sirounis morning rounds in the St. Paul's Hospital ICU



Dr. Dave Sweet - morning rounds in – the Vancouver General ICU

### Key Challenges:

As COVID-19 Hospitalizations hit record highs in 2021, ICU capacity in many hospitals was overwhelmed. The challenges of the pandemic have highlighted a need for:

- A comprehensive and strategic provincial approach to providing sustainable critical care delivery;
- An inclusive and collaborative research hub that supports our early career investigators;
- Provision of expert critical care education across the spectrum: The Racism in BC Healthcare report highlights that we can do better in providing culturally safe care for our population (see Critical Care Grand Rounds, March 2021 - Transforming Culture: Embedding Cultural Safety in the Mission and Goals of the FoM Division of Critical Care).

## Critical Care Division Faculty members (see Critical Care website – People):

- Critical care at UBC is delivered by faculty in and outside the Department of Medicine. A goal of our division is to expand our membership to be inclusive of the critical care leadership and physicians practicing critical care in our province.

### New members in 2021:

**Dr. Michael Christian** completed his Internal Medicine training at University of Toronto in 2003, and his fellowships in Critical Care Medicine and Infectious Diseases at McMaster University in 2007. He has a Master of Public Health from London School of Hygiene and Tropical Medicine in 2009 and is completing a Master of Business Administration at Durham University. He served as Specialist Medical Officer (Internal Medicine and Critical Care) with the Canadian Armed Forces (Royal Canadian Air Force) from 2009-2015. His faculty appointment at McMaster was at the Associate Professor level (2015-2016) and Assistant Professor (Clinician Investigator) in Critical Care and Infectious Diseases at University of Toronto from 2010 to 2015. Past roles include Senior Clinical Scientist at the Intensive Care National Audit and Research Centre UK; Senior Lecturer at Queen Mary University of London; Research and Clinical Effectiveness Lead, London's Air Ambulance, Bart's Health NHS; Critical Care Locum Physician at Thunder Bay Regional Hospital; Consultant (Courtesy) in Critical Care and Infectious Diseases, Mount Sinai Hospital and University Health Network in Toronto; and remains in the reserves for the Canadian Air Force. Dr. Christian is now Chief Medical Officer, BC Emergency Health Services at PHSA.

**Dr. Tiffany Lee** is an Intensive Care physician is primarily working in critical care in British Columbia's Fraser Health Region and the University Hospital of Northern British Columbia (UHNBC) in Prince George. In this setting, she supervises rotating residents, lead team simulations, and delivers bi-monthly online teaching sessions for the ICU nurses. Dr. Lee received her MD in 2012 at McMaster University and completed her Internal Medicine training at University of Saskatchewan in 2015. In 2017 she completed her training in Critical Care at the University of Toronto. She also completed her Palliative Care Fellowship at the Health Network, Toronto in 2019. She is currently enrolled in the Health Sciences Education MSc Program at McMaster University.

Dr. Lee has an active interest in teaching. After her Palliative Care fellowship, she worked for 9 months as a palliative care physician/ program manager in a Médecins Sans Frontières (MSF) gynecological cancer project in Blantyre, Malawi. In this role, she wrote palliative care protocols and trained a team of nurses, clinical officers, social workers, interpreters, and junior doctors and established a palliative care outpatient clinic, a 6-bed palliative care unit, and a home-visiting palliative care service. She also had the opportunity to teach nursing students enrolled in the Palliative Care program at the Malawi College of Medicine.

**Dr. Amanda Roze des Ordons** (Associate Member) is an Intensive Care physician whose primary appointment is Clinical Associate Professor in the Department of Anesthesiology Pharmacology and Therapeutics in the Faculty of Medicine at UBC (March 2021). She is currently working as an Anesthesiologist at Kelowna General Hospital and is doing locum work in critical care.

Dr. Roze des Ordons received her MD in 2006 and completed her Anesthesiology training at University of Alberta in 2011. In 2013 she completed her training in Critical Care at the University of Ottawa. She also completed her Master of Medical Education at the University of Dundee, Scotland, UK in 2014. She received her Certification in Palliative Medicine, Royal College of Physicians of Canada 2015. She is currently enrolled in the PhD in Medical Education at the University of Calgary and her project is examining psychological distress in learners and how to better develop ways to mitigate and prevent burnout.

Dr. Roze des Ordon is an active and strong teacher in critical care, palliative care and anesthesiology. She was involved in didactic and bedside critical care teaching of UGME and PGME learners as well as CPD and CME at the University of Calgary.

**Promoted in 2021:** Drs. Hussein Kanji and Vikas Chaubey to Clinical Associate Professor, Drs. Anish Mitra and David Liu to Clinical Assistant Professor

#### Division Critical Care members (53):

- Professor Emeritus (1)
- Professor (tenure) (2)
- Assoc Professor (tenure) (1)
- Assoc Professor (grant tenure) (2)
- Clinical Professor (5)
- Clinical Associate Professor (8)
- Clinical Assistant Professor (18)
- Clinical Instructor (16)

**Associate members (21)** - includes Divisions of Cardiology (1 Joint member), Community Internal Medicine (2), General Internal Medicine (1), Infectious Disease (1), Nephrology(1) and Respiratory Medicine (1), in the Department of Medicine as well as Departments of Anesthesiology (8), Emergency Medicine (5) and Surgery (1):

- Assoc Professor (grant tenure) (2)
- Clinical Professor (1)
- Clinical Associate Professor (4)
- Clinical Assistant Professor (10)
- Clinical Instructor (4)

#### Awards in 2021:



Dr. Dave Sweet (Associate Professor, Department of Emergency Medicine) received the Vancouver Medical Dental and Allied Staff (VMDAS) Special Service Award for his accomplishments as Chair of the BC COVID-19 Therapeutics Committee, which provides evidence-based recommendations to the province. Dave was recognized for his passion in ensuring patients receive evidence-based care and that front-line clinicians feel supported in their decision-making.

Award for Academic Half-day Teaching Excellence: Dr. Ken Kaila

Award for Clinical Teaching Excellence: Dr. William Henderson

Award for Outstanding Mentorship: Dr. Kali Romano

## Major Member Achievements - Recognition in 2021:

Dr. Peter Dodek was on a panel discussion with the Canadian Critical Care Society: “Physician wellness and coping during the pandemic and beyond”. The recording can be found [here](#).



Dr. Steve Reynolds was recognized as a Champion of Philanthropy 2021. Dr. Steve Reynolds was site medical director during some of Royal Columbian Hospital Foundation’s most successful fundraising years, providing strong leadership in support of the organization’s charitable goals. He has been a frequent collaborator in donor and news media initiatives and helped to increase the hospital’s profile. Dr. Reynolds has also fostered research efforts within Royal Columbian and was awarded the TB Vets Charitable Foundation Professorship in Critical Care at Simon Fraser University.



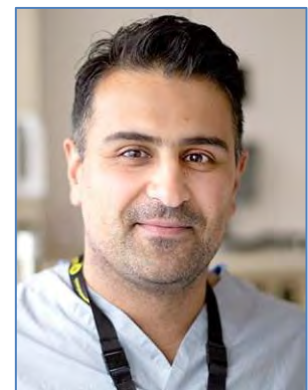
Dr. Alasdair Nazerali -Maitland was featured in the November 2021 CHES Member Spotlight for his contributions to Medical Education Scholarship. He shares his insights: *“Build a superb team and trust them to help with tasks”*.

## Education:

*Dr. Mypinder Sekhon – Adult Critical Care Training Program Director, UBC*

### Program Highlights

- There is a collegial and supportive learning environment, with uniquely broad clinical exposure which supports a positive learning environment that promotes resident wellness.
- The program director is committed, has great leadership and communication skills, and is supported and well-liked by all stakeholders.
- Teachers are skilled, enthusiastic, and committed.
- There is a robust system of resident assessment (including adopted CBD assessment tools, simulation, weekly narratives, 60/multisource feedback, end-of-rotation feedback, daily entrustable professional activities (EPAs), objective structured clinical examination (OSCE),



MCCKAP (Multidisciplinary Critical Care Knowledge Assessment Program) examination, technical skills assessments, teaching assessments and academic half-day assessments).

- The excellent wellness program is a theme that is noticed throughout the program (formal curriculum), recurring item at Residency Program Committee meetings, wellness checklist, psychiatrist on the competence committee who serves as an external member to underscore the importance of psychological wellbeing.

Number of learners

- Medical Students, Family Practice and Royal College residents can be found in every ICU in the province of BC

Number of applications from Prospective Subspecialty Training Program residents

- Average is ~35 applications submitted via CaRMS

Number of subspecialty Training program residents: Currently 9 (2021-2022)

- **Cohort 2020-2022:** Lyndsay Sprigg , Kristen Kidson, Jennifer Chao and Gabrielle Levin
- **Cohort 2021-2022:** Emma Schon, Duncan Maguire and Simon Hasan
- **International Clinical Fellows:** Stephen West (United Kingdom): April 1, 2021 – March 31, 2023

## Research:

Number of peer-reviewed publications from the division in 2021: **78**

Research Funding/Grants for the division totaled:

- **\$5,417.781** (fiscal 2020/2021)
- Includes **\$3,771,947.00** from Division members of iCapture (Drs. Keith Walley, Jim Russell and John Boyd)

### *Research Highlights of 2021:*

[Improving Outcomes for Critically Ill Patients – Dr. Myp Sekhon, leading the forefront of neurocritical care at VGH:](#)

A team of researchers led by [Dr. Myp Sekhon](#), Dr. Gooderham and Dr. Cheryl Wellington, a Vancouver Coastal Health Research Institute and Djavad Mowafaghian Centre for Brain Health at UBC researcher, have developed an innovative research program aimed at identifying novel targets for brain injury research using the donor-funded Brain Bolt. Combining the real-time data from the Brain Bolt and using a machine known as a Simoa HD-X analyzer in Dr. Wellington's donor-funded research lab at UBC, blood samples that normally take weeks to analyze are processed with unparalleled sensitivity to unravel the unknowns of the disease mechanisms underpinning acute brain injury. This bench-to-bedside approach is also characterizing the immune system changes to provide optimal care for COVID-19 patients.

**Dr. James Russell:** For the seventh year in a row, Jim has been ranked globally # 1 in septic shock, # 2 in norepinephrine, # 3 in shock and # 4 in sepsis.



“Our international COVID-19 research program called ARBs CORONA has evolved nicely having 12 publications (published, in press or submitted). The overarching hypothesis is that angiotensin receptor blockers (ARBs) decrease the mortality of acute COVID-19. I pivoted from septic shock to COVID-19 research because acute COVID-19 is sepsis by definition and we have 35 years of sepsis research expertise and experience.

I am PI, established and led the ARBs CORONA Program that won \$3,795,443 from CIHR and \$147,000 from St. Paul’s Hospital Foundation for our SPH-and UBC-led COVID-19 research program. The largest CIHR grant (\$3,345,541) was 3<sup>rd</sup> largest in Canada and the largest in BC/UBC in the last CIHR COVID-19 competition. This is a randomized controlled trial of ARBs testing whether ARBs decrease mortality of acute COVID-19”.

**Dr. Keith Walley:** Keith’s research is primarily in the area of sepsis and related critical illness. This year Keith ranked #11 globally for expertise in sepsis and #9 in septic shock.

“I have led a group of investigators at the Centre for Heart Lung Innovation (HLI) in discovering the fundamental role that lipoprotein biology plays in sequestration and clearance of pathogen lipids in sepsis (2021 peer-reviewed publication list #1). My group has discovered that alterations in lipoprotein function leads to altered sepsis survival. I am a leader in using genetics and other ‘omics approaches and large data sets to understand the pathophysiology of sepsis involving extensive international collaboration (publications #2, 8, 10). I also contribute to analysis of large patient datasets to understand important clinical outcomes and processes in critically ill patients (publications #3, 4). I collaborate on COVID clinical research led by Dr. Jim Russell (publications #6, 7, 9). I chair of the Data Safety and Monitoring Board for a Phase II trial of stem cells for COVID-19 ARDS (CIRCA-19 trial) and chair of the Data Safety and Monitoring Board for a Phase I trial of genetically engineered stem cells for the treatment of septic shock (AMETHYST trial)”.

**John Boyd:** John’s research program focuses on sudden organ failure during infection.

“The research and training is patient centred and focuses on three themes: clinical, translational and mechanistic. These themes have had substantial impact in sepsis and critical care, both through direct innovations in the clinic (described below), and commercialization by an active UBC spinoff company I co-founded, Black Tusk Research Group. In addition, I had 5 peer reviewed publications and a patent filing update (with new data) in 2021, most directly related to the novel field of host-pathogen lipid transport.

In 2021 I have continued to pursue a new paradigm moving the major thrust of my research towards prevention as treatment in the field of critical care overall and sepsis as a sub-focus. This has been a major undertaking requiring clinical innovation which has gone hand in hand with research. To reduce the 50% rate of re-admission following a critical care admission for sepsis, I worked with PHC Director of Acute Care (Amanda Harvey) and the Lead of PHC CST (David Brown) to create the **Critical Recovery Clinic, anticipated Q2 2022 first visit”.**

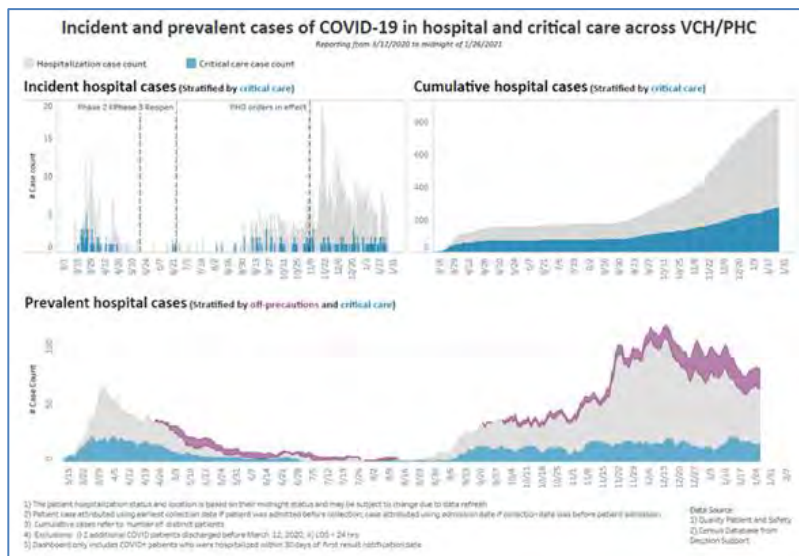
## Clinical Highlights:

Royal Columbian Hospital cardiac surgeons Dr. Derek Gunning and Dr. Hossein Shayan provide



life-saving support to the sickest patients who require heart and lung by-pass. The two lead a regional network of 13 perfusionists mobilized to provide lifesaving ECMO (Extracorporeal Membrane Oxygenation) care, with the recent addition of three ECMO physicians to serve the growing population in Fraser Health.

## COVID-19 Response for Vancouver Coastal Health.



Dr. Don Griesdale (Associate Professor, Department of Anesthesiology) served as the Associate Vice-President of Medicine, Quality and Safety during the COVID-19 pandemic. He was a member of the Regional Emergency Operations Center (REOC) throughout this time. He was responsible for the many aspects of our COVID-19 acute care response, and in particular lead the development of the Regional COVID-19 data dashboard

which followed all of our acute care and critical care admissions throughout the pandemic.

There were several endeavours he was involved with:

- Leading the development of acute care and critical care data for the region. This involved integrating provincial laboratory data and hospitalization data to develop a consolidated database for the region which was used operationally.
- Development of the COVID-19 post discharge clinic

Dr. Hussein Kanji led monthly BC Critical Care Network meetings that featured updates from the Deputy Provincial Health Officer and were well attended by Intensivists from around the province.

Drs. Adam Thomas and Anish Mitra provided timely and comprehensive COVID literature updates. Provincial guidelines for COVID-19 therapeutics were updated regularly.



*Vancouver General Hospital's (VGH) Extracorporeal Membrane Oxygenation (ECMO) team* has been honoured with the B.C. Health Care Awards' Gold Apple in the collaborative solutions category.

This award adds another accolade to the ECMO team's growing list of recognition, which includes being the first hospital in Canada to achieve gold-level status by the Extracorporeal Life Support Organization in 2019.

ECMO is an advanced form of life support that pumps and oxygenates blood outside the body so a patient's heart and lungs can rest. It is a safer alternative to using a ventilator, which can lead to permanent damaging effects and even death. ECMO is often used for patients awaiting lung transplants.

From day one, the VGH ECMO program's success has been the product of exceptional team work: initially developed through the collaboration of 42 health partners from more than 10 organizations, the program continues to lean on the expertise of a multi-disciplinary team to provide its gold-standard care.

The team includes doctors, nurses, care aides, occupational therapists, perfusionists, respiratory therapists, physiotherapists, pharmacists, social workers, spiritual care practitioners, extracorporeal life support (ECLS) specialists and dietitians.

**Dr. Hussein Kanji, Intensivist and Co-Director of VGH's ECMO program**, explains the impact this collaboration makes on patient care.

"I'm incredibly proud of what has come from our collaboration. We see patients who are on death's doorstep, who often have a very low or dismal chance for survival, who walk out of the hospital and go on to lead amazing and beautiful lives," says Hussein. "It's because everyone on the team has come together to work towards a patient-centric outcome."