



ANNUAL REPORT

Jan 2019 - Jun 2020

**INTERDEPARTMENTAL
DIVISION OF CRITICAL CARE MEDICINE**
Departments of Medicine, Surgery, Anaesthesia,
and Paediatrics

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MESSAGE FROM THE DIVISION DIRECTOR



Laurent Brochard, MD

Dear colleagues and friends,

We are finishing a hectic year and are still in the midst of the pandemic. This pandemic occupied our lives for the past year and we'll keep in mind these two years, 2019 -after which the virus was named - and 2020 -as the year the virus started to spread all over the world- probably for ever.

As Critical Care clinicians, educators and scientists we have been at the front line, and, more than ever, Critical Care Medicine has appeared as being at the core of modern medicine.

The numbers and figures presented in this report only partially reflect the multiple challenges and dilemma we had to face, the personal drama we had to live, and the major organizational changes we had to solve. The highly functional nature and the flexibility of our system allowed us to respond extremely efficiently and we can be proud of this. Our research directly informs how to better treat patients and all our academic activities have a very powerful meaning. The report from each site gives a better flavor of the changes that happened locally and describes many of the successes we experienced. The Department of Critical Care at SickKids remind us that 2019 has been a terrible year with the loss of two exceptional individuals. Afro and Brian will remain in our hearts. Let us congratulate Steve and Elaine for taking the lead of this Department in this difficult situation. Those past 18 months have been full of difficult times and we have seen many patients dying from COVID-19, reminding us of our limits. Our work is done to push these limits and continue to progress, and we must enjoy and celebrate all our achievements.

I want to thank you all for this incredible activity. Once again I feel extremely privileged and proud to be part of this group.

Laurent Brochard, MD
Division Director, Interdepartmental Division of Critical Care Medicine
Department of Medicine, University of Toronto

MEMBERS OF THE EXECUTIVE COMMITTEE

Chair

Dr. Laurent Brochard, St. Michael's Hospital

Department Chiefs

Dr. Andrew Baker, St. Michael's Hospital

Dr. Niall Ferguson, University Health Network and Sinai Health System

Dr. Damon Scales, Sunnybrook Hospital

Dr. Steven Schwartz, The Hospital for Sick Children

Program Directors

Dr. David Hall (adult)

Dr. Briseida Mema (pediatric)

Research Directors

Dr. Margaret Herridge

Dr. Hannah Wunsch

Department of Critical Care Medicine, St. Michael's Hospital



Andrew Baker, MD

This past year was another very productive year for the Department of Critical Care at Unity Health Toronto - St Michael's.

The Department of Critical Care welcomed Dr. Alberto Goffi as a member of its faculty in July 2019. He was appointed as Director of Educational Residency Program for the Department of Critical Care at Unity Health Toronto - St Michael's Hospital.

We also said goodbye to our Clinical Associate, Dr. Niall Filewod in June 2019.

Education

Congratulations to our SMH Critical Care faculty:

Dr. Karen Burns and Alberto Goffi received Teaching Excellence Award at St Michael's Hospital site.

Dr. Andrew J Baker received a Special IDCCM COVID-19 Critical Care Leadership Award at the Virtual Art Slutsky Day for his leadership in the provincial critical care table. Drs. Alberto Goffi, David Hall, Natalie Wong and Simon Abrahamson received Special IDCCM COVID-19 IDCCM Education Award for their commitment and dedication to IDCCM education. Drs. Karen Burns and Jan Friedrich won the IDCCM Site teaching award.

In recognition of his enthusiastic commitment to and support of the trainees, Dr. Alberto Goffi won the John Granton teaching award for his outstanding contribution to Critical Care Education, and Dr. Natalie Wong won the Compassionate Educator Award

Research

Dr. Laurent Brochard received 2019-2020 SMHA AFP Innovation Funds for his project name: "A strategy to improve management and prolong life without readmission for hypercapnic patients: the simplify project". He was also awarded a grant from University of Toronto, Toronto COVID-19 Action Initiative – 2020 for his "Careful Ventilation in Patients with ARDS induced by COVID-19. The CAVIARDS 19 trial" project.

Dr. Karen Burns received The PSI-50 Mid-Career Clinical Research award. This award acknowledges that this phase of a researcher's career can be challenging, with additional academic roles and responsibilities, while clinical work continues. She received the award to support her research:

“Advancing Conduct and Reporting of Sex and Gender Based Analysis in Critical Care: A Program of Research”

Dr. Warren Lee and Dr. Xiao-Yan Wen’s project: Discovery of Novel Drugs for Severe Influenza is the second runner up at the Global Healthcare Innovation Academy meeting in Hong Kong.

Our junior staff, Dr. Michael Sklar won the John Laffey Award in 2020. He was also awarded a CIHR Fellowship Award. Irene Telias, Dr. Laurent Brochard’s research international fellow won the Best Abstract in Physiology category. Irene Telias also received a CIHR fellowship award.

Other Recognition

Dr. Patricia Houston received a major professional recognition from the Canadian Anesthesiologists’ Society – the Gold Medal. The Gold Medal is the highest award of the Canadian Anesthesiologists’ Society. It is an inscribed medal given in recognition of excellence in a career in service to anesthesiology.

Our Critical Care Clinical Research Unit (CCCRU)

In March 2020 with the onset of the COVID-19 pandemic, clinical research at St. Michael’s Hospital (SMH) and across Ontario and Canada stopped abruptly. In response to this pandemic, the Critical Care Clinical Research Unit (CCCRU) rapidly adapted and supported COVID-19 specific research. Pre-pandemic, more than 20 critical care trials were already underway, a mix of observational and randomized control designs. Recruitment and enrolment into these studies were halted. At the same time, 5 new COVID-19 related trials were initiated at record speed. Our overarching goal was to address the critical needs of COVID-19 research. Critical care research embarked on the adaptive platform clinical trial for the treatment of COVID-19, and novel physiologic trials with biobanking to develop prognostic and predictive models of clinical progression of COVID-19 using clinical and laboratory data. Recruitment from the intensive care units (ICUs) was at its peak in March and April with 85% enrollment into the COVID-19 trials. With the increasing pressure of the pandemic on the healthcare system, there have been widespread changes to workflow. Research personnel from other therapeutic areas were quickly deployed. The CCCRU engaged staff from the Anesthesia, Respiriology, Cardiology, Neuropsychiatry, and wet bench research departments to ensure that enough research personnel were available to manage this intense clinical trial activity. Critically ill patients were enrolled into the trials “pedal to the metal”, recognizing that there’s a sense of urgency and purpose to use science to solve problems that are important to patients and the public.

As the province begins to reopen, hospitals are tasked with the challenge of resuming clinical activity and clinical research in a safe and responsible way. Critical Care Research at St. Michael’s Hospital will now take on this challenge and will work in lockstep with the institution’s Clinical Research Re-start Committee to ensure a smooth and integrated restart of all critical care trial activities.

Department of Critical Care Medicine, Sunnybrook Hospital



Damon Scales, MD

Sunnybrook is Canada's largest trauma and burn hospital, and admits approximately 4,500 intensive care patients every year. The Department of Critical Care Medicine oversees the care of a broad variety of critically ill patients including patients following life-threatening traumas and burns, neurosurgical and neurovascular emergencies, cardiovascular surgery, oncological disorders, and general medical and surgical illnesses. The Department also has a vibrant academic program, contributing to numerous high-impact research, education, and quality improvement initiatives.

Dr. Damon Scales became the Chief of the Department in 2019, replacing Dr. Brian Cuthbertson after his highly-successful 10-year term. Dr. Andre Amaral was appointed the Deputy Chief in 2020. The resident education program is led by Drs. Alya Kamani, Dominique Piquette, and Shelly Dev and the large international fellowship program is led by Drs. Shelly Dev and Cameron Guest. Dr. Neill Adhikari is the Research Director overseeing clinical trials with Nicole Marinoff (Research Manager) and her team. Dr. Martin Chapman is the Rapid Response Lead and also lead of the neurocritical care team. Dr. Robert Fowler became the Chief of Sunnybrook's Tory Trauma Program in 2019. Dr. Dominique Piquette continued her role as the Associate Director, Education Research & Scholar Development for the Interdepartmental Division of Critical Care Medicine (IDCCM) and Dr. Hannah Wunsch continued as the Associate Research Director for the IDCCM.

In 2019, Dr. Lorraine Tremblay departed the Department after providing more than 20 years of dedicated and exemplary service in our intensive care units. She is continuing in her role as one of Sunnybrook's very best trauma surgeons, and she continues to work alongside us as we strive to deliver the best possible care to our trauma patients. Dr. Louise Rose also departed after serving as the inaugural TD Nursing Professor in Critical Care Research at Sunnybrook, and is now a Professor of Nursing at King's College in the United Kingdom. Dr. Mike Tylee completed his 3-year appointment as a Clinical Associate in the Department, and was recruited to a full time position in the Department of Anesthesia at the UHN.

Achievements by individual members:

The Department of Critical Care Medicine (DOCCM) supports participation in primarily academic studies, including those developed by Canadian Critical Care Trials Group (CCCTG) investigators. Researchers in the DOCCM have expertise spanning observational studies and health services research, qualitative research, randomized controlled trials, economic evaluations, and educational research. DOCCM

investigators achieved many important accomplishments in 2020 including several large grants and high-impact publications. The first 6 months of 2020 saw increased activity related to COVID-19-related projects, while other projects were temporarily halted. During the 2020 calendar year, DOCCM researchers published 133 articles in peer-reviewed journals. The Department also has a very active educational program and a vibrant international fellowship program that attracts talented trainees from around the world. DOCCM physicians also lead and/or participate in many regional, provincial, and national quality improvement activities.

Dr. Neill Adhikari is the co-PI of 2 RCTs funded by CIHR (1) Impact of permissive hypotension on end-organ damage in the elderly (OVATION-65, NCT03431181), and (2) Lessening Organ Dysfunction with VITamin C (LOVIT, NCT03680274). He obtained additional funding as co-PI for LOVIT-COVID (NCT04401150), a trial of vitamin C in in patients with COVID-19. For the COVID-19 response, he has worked with other IDCCM faculty on local management guidance with WHO on global clinical guidelines. He co-leads the Toronto-Addis Ababa Academic Collaboration in critical care (with Dr Alberto Goffi), who's first fellow was an observer in Toronto in 2019. He also published 22 articles in peer-reviewed publications during the past year.

Dr. Federico Angriman (Junior Attending) was admitted into the PhD program in Clinical Epidemiology at the Institute for Health Policy, Management and Evaluation from the Dalla Lana School of Public Health. He was awarded the Connaught International Scholarship for Doctoral Students and both a prestigious Vanier Canada Graduate Scholarship and a CIHR Fellowship (ranked first, but award declined to accept the Vanier). His research program focuses on describing the occurrence of long term cardiovascular outcomes in adult sepsis survivors. Over the last year, Dr. Angriman contributed to several publications including a systematic review in JAMA evaluating the effect of non-invasive oxygenation strategies for adult patients with hypoxemic respiratory failure. In 2020, he received the annual Simon Abrahamson award for outstanding academic achievement and performance.

Dr. Andre Amaral became the Deputy Chief of the Department in 2020. He also serves as Quality Lead for the Department and Medical Director, Respiratory Therapy for the hospital. He continued to lead multiple quality improvement initiatives locally and also regionally. He is chair of the Toronto Central Local Health Integration Network Critical Care Quality Committee. He also leads (with Dr. Eddy Fan) the i-CORE quality and research registry.

Dr. Tom Bodley (Clinical Associate) is completing his MSc at the Institute for Health Policy, Management and Evaluation. His research program combines clinical research and quality improvement, focusing on the rigorous implementation and evaluation of quality improvement interventions that target mechanically ventilated patients. He recently won an award for 'top research abstract' at the Canadian Critical Care Forum.

Dr. Martin Chapman has enjoyed his position at Sunnybrook HSC, continuing in clinical service, education and research, particularly focused on Neurocritical Care. Again he has participated in the undergraduate training program, with Case Based Learning tutoring, and postgraduate training. His research areas this year included volatile agents for ICU sedation, anti-epileptic agents for seizure

prophylaxis after trauma, focused ultrasound and neuromodulation, transfusion thresholds in subarachnoid hemorrhage, and multimodal monitoring in TBI.

Dr. Brian Cuthbertson (with co-PI Dr. Angela Jerath) received more than \$3million in funding for a RCT of volatile anesthesia-based sedation in ventilated COVID disease (SAVE-ICU RCT) from CIHR and the Government of Ontario. This application was ranked top of 440 applicants to CIHR. Dr. Cuthbertson was also an International Group Member of a Medical Research Council (UK) grant to undertake a methodological review of the role of placebo surgery and to develop a CONSORT extension on placebo control groups in surgical trials (Lancet, 2020). Finally, (with Craig Dale) he led a Canadian collaboration that was designed as a stepped wedge implementation / de-implementation of chlorhexidine and an oral care package in ICU. The study enrolled 3200 patients and the manuscript is currently under peer review. Finally, Dr. Cuthbertson is a Founder and International steering group member of the Canadian Sepsis Network, which received \$5.7M from CIHR in 2019 to enhance the diagnosis, treatment and outcomes for sepsis in Canada and internationally.

Dr. Shelly Dev returned from an academic sabbatical, and resumed her role as Director of Education. She also is the Lead, Wellness and Mentorship for the IDCCM and the Chair, Professional Values Action Committee, Faculty of Medicine. She continues to be a highly-sought after speaker on the topics of wellness and resilience, and gave 18 invited external presentations including 5 international presentations during the past year. In collaboration with the World Health Organization, she also helped develop a multimedia education series for COVID providers in under-resourced countries.

Dr. Rob Fowler is the very proud inaugural Barrie Fairley Professor in the IDCCM. He also continued as Chair of the Canadian Critical Care Trials Group (CCCTG). CCCTG members have been at the forefront of COVID-19 research, organizing observational studies and clinical trials to characterize the Canadian and global pandemic experience, in addition to testing potential therapies. Dr. Fowler also became the Chief of the Tory Trauma Program at Sunnybrook Hospital in 2019. He continues to work with the Public Health Agency of Canada and the WHO, this year mostly on clinical and research guidance for the pandemic, and helping to characterize the national capacity to treat critically ill patients. This was Dr. Fowler's last year as graduate program director for Clinical Epidemiology and Health Care Research at the Dalla Lana School of Public Health – a program that grew enormously in scope and prestige under his leadership, and continues to benefit from the participation of many talented paediatric and adult critical care trainees and faculty. He published more than 30 articles in peer-reviewed journals during the past year, and also received the 2020 Department of Medicine Senior Researcher Award.

Dr. Cameron Guest continued in his role as Business manager and also the Fellowship Director of the Department. Dr. Guest continues to recruit a large and very impressive and talented group of international fellows that contribute greatly to the overall clinical and academic mission of the Department.

Dr. Barbara Haas received two large grants from CIHR as PI: (1) Approaches to routine evaluation of long-term, patient-reported outcomes following traumatic injury and (2) Examining the long-term illness experiences of injured older adults to select patient-driven outcome measures in geriatric trauma. She published more than 10 manuscripts in peer-reviewed journals during the past year, and continued to supervise 2 PhD and 2 MSc students. Dr. Haas was also awarded the Lois H. Ross Resident Advocate

Award from the Professional Association of Residents of Ontario; this award is given to one individual in Ontario who consistently advocates on behalf of residents and resident issues.

Dr. Alya Kamani (Clinical Associate) is the acting Resident Education Director for the Department. She is currently completing her Masters of Science in Community Health at the Dalla Lana School of Public Health at the University of Toronto with a focus on Health Professional Teacher's Education.

Over the past two years, she completed a Royal College Fellowship in Clinical Pharmacology and Toxicology and will be a Staff Consultant at the Hospital of Sick Children as a Medical Toxicologist this year. This past year, she developed a curriculum for Acute Toxicology for Critical Care trainees and has been an invited teacher at both the University of Toronto and McMaster University.

Dr. Dominique Piquette continued her leadership of numerous educational research and scholarly projects. She is conducting, as a Co-PI with Dr. Chris Parshuram, the INCURS trial, a CIHR-funded, national, cluster randomized crossover trial on the effects of resident schedule on patient mortality and safety, and on resident learning and wellbeing. She is also leading a RCPSC-funded project on the implementation of competency-based medical education within the Adult and Pediatric critical care residency programs, as well as ongoing qualitative studies on moral distress among critical care physicians and trainees. In 2019, she received an IDCCM Teaching Award for the Sunnybrook Site. During the COVID pandemic, Dr. Piquette conducted a series of inter-professional in situ simulations to train ICU staff and trainees on use of personal protective equipment (PPE) and protected procedures. She has also obtained with other colleagues local funding to evaluate the Quick ICU Training website developed by Dr. Spring and Dr. Cuthbertson, in collaboration with many UofT scientists, including Dr. Ryan Brydges and Stella Ng. She continues to feel privileged to be the Curriculum and Scholarly Lead for the UofT Adult CCM Residency and Fellowship Programs, and to be involved in education at the postgraduate and post-certification levels.

Dr. Gordon Rubinfeld returned from an academic sabbatical this year. He received as co-PI a large grant from the National Institutes of Health (NIH) to conduct a Phase 3 trial that will evaluate strategies to prevent CMV reactivation in lung injury and respiratory failure (GRAIL). He also continued his work on the editorial boards of JAMA Network Open and Critical Care.

Dr. Damon Scales continued his work on 3 CIHR-funded trials: the PROTEST RCT, which compares the safety and effectiveness of early versus delayed thromboembolic prophylaxis using anticoagulants in patients with traumatic brain injury; the PITSTOP RCT, which evaluates the impact on mortality of prompt antibiotic and/or intravenous fluid administration by paramedics to patients with sepsis; and the NEURO-ETT RCT (co-PI Niall Ferguson), which tests the optimal airway management strategy for patients who are weaned to minimal ventilator settings but remain intubated due to underlying neurological injury. He also was co-PI on a new grant from CIHR (with Dr. Farhad Pirouzmand) to study outcomes depending on the size of resection margins for glioblastomas. He published 29 articles in peer-reviewed journals during the past year.

Dr. Terry Smith continued in his role as CME lead, organizing the weekly Critical Care Grand Round Series.

Dr. Jenna Spring (Clinical Associate) is completing a Masters in Patient Safety and Healthcare Quality through Johns Hopkins University as well as additional fellowship training in Oncologic Critical Care at UHN/Sinai. She is currently working to implement an advance care planning intervention for high risk hematologic malignancy patients and has received the “Hold'em for Life” Oncology Fellowship to support this work. During the COVID-19 pandemic, she also co-led the development of an online ICU educational resource (www.quickicutraining.com) aimed at helping redeployed clinicians care for critically ill patients.

Dr. Bourke Tillmann (Clinical Associate) continues to work on his PhD thesis, having achieved his PhD candidacy status over the past year. His research focuses on equity in access to care among acutely ill patients and this year he presented his work at the Annual Meeting of the American Association for the Surgery of Trauma. He also continues to work towards strengthening collaboration between emergency medicine and critical care. Over the past year he has acted as a supervisor for a TAHSN fellowship examining the care of ICU patients in the emergency department, been an invited speaker at the Annual Update in Emergency Medicine, and a guest speaker on the Emergency Medicine Cases podcast.

Dr. Hannah Wunsch was the recipient of a Tier 2 Canada Research Chair (CRC) in Critical Care Organization and Outcomes. These awards are extremely competitive and widely considered to be Canada's highest research honour. The Chair will allow her to continue her research that focuses on how ICUs are staffed and whether those staffing choices impact patient care and outcomes. She also is investigating how choices of medications, for example vasopressors and opioids, impact patients. Dr. Wunsch also received a grant from the Sunnybrook AFP Innovation Fund, and she published more than 25 articles in peer-reviewed journals during the past year. She continued to lead (with Drs. Damon Scales and Rob Fowler) the Acute and Intensive Care Outcomes Research Network (AICORN). This group focuses on ICU health services research to examine the pharmacoepidemiology, long-term outcomes, and trends over time in the care of critically ill patients, trauma patients, and patients at or near the end-of-life. Dr. Wunsch also continued to lead the IDCCM's “Nuts and Bolts of Research”, which offers individual grant feedback for trainees and junior faculty of IDCCM within 6 years of appointment.

In addition to these physicians, we are fortunate to attract dozens of highly impressive clinical fellows to our international fellowship program each year, who work with the University of Toronto residents in the RCPSC Critical Care Medicine training program to provide world-class care to our patients. The Department benefits enormously from the leadership of our operational leaders, including our Operations Director (Cynthia Woodard), patient care managers (Gerry Hubble, Aaron Watamaniuk, Nicky Holmes, and Ramona Hackett), and respiratory therapy leads (Julie Nardi and Linda Rawe). Indeed, critical care at Sunnybrook is delivered by hundreds of talented and highly-skilled nurses, respiratory therapists, physiotherapists, dieticians, pharmacists, occupational therapists, and chaplains working across multiple ICUs and also providing excellent continuity of care along the trajectory of illness for our critically ill patients. We are proud, awed, and inspired by our incredible multidisciplinary team.

Department of Critical Care Medicine, The Hospital for Sick Children



Steven Schwartz, MD

The Department of Critical Care Medicine at SickKids saw a great many changes over the past 18 months, as we both celebrated important achievements and weathered great losses, illustrating the strength and resilience of this incredible team.

Both the Cardiac Critical Care Unit and Paediatric Intensive Care Unit remained busy, as each represents that largest unit of its kind in Canada and the only ones in Ontario that serve the most complex patients. For fiscal year 2019/2020, the Cardiac Critical Care Unit (CCCU) had approximately 800 admissions accounting for almost 5000 patient days. The Paediatric Intensive Care Unit (PICU) – had approximately 1300 admissions for over 5700 patient days.

Milestones

In 2019, we welcomed several new staff: Dr. Luciana Rodriguez-Guerineau who joined the faculty of the Division of Cardiac Critical Care Medicine July, and Dr. Nicole McKinnon and Dr. Andrew Helmers, who both became full-time faculty in the Division of Paediatric Intensive Care Medicine in January 2020. We have been very fortunate in being able to recruit these extremely talented individuals to our faculty.

In October 2019, we were thrilled to welcome Dr. Elaine Gilfoyle as Division Head for the Paediatric Intensive Care. Elaine grew up in Ontario but had lived in Calgary for 14 years with her family, where she practiced paediatric critical care medicine at Alberta Children's Hospital since 2005. She was the Director of Research there, where she built the program from scratch. Elaine has been volunteering with the Royal College of Physicians and Surgeons of Canada for the past number of years, and is currently the Chair of the CCM exam board, the first pediatric intensivist ever to do so. Her experience in education and resuscitation research will add further dimensions to our efforts in these areas.

Following his retirement at the end of 2018, former Paediatric Intensive Care Division Head Dr. Peter Cox embarked on an incredible journey between January to May 2019, cycling 12,000 km across Africa from Cairo to Cape Town to raise \$250,000 for Transforming Faces, a Canadian charity that provides cleft repair surgery and other health services in developing countries.

Our faculty have undertaken important leadership roles in the institution in 2019/20. Dr. Michael-Alice Moga was appointed in August 2019 as co-chair of the Hospital-wide Mortality & Morbidity Committee, a very important committee across the hospital that reviews safety reports and M&M minutes from other divisions and departments across the institution, serving a vital function in their implementation of recommendations to ensure delivery of the highest quality and safest care. In March 2020 Dr. Roxanne Kirsch accepted the role of Associate Chief of Faculty Development, Equity, Diversity & Inclusion for Perioperative Services, in which she will lead initiatives in faculty career development, faculty and trainee

wellness and equity, diversity and inclusion, developing and implementing meaningful benchmarks to measure success of targeted initiatives.

Though we celebrated many successes in 2019, our Critical Care family also suffered tragic losses. On June 15th our dear colleague and friend Dr. Brian Kavanagh passed away, leaving an enormous hole in our hearts and in the Critical Care community worldwide. Email condolences and tributes poured in from around the globe, mourning the loss of this one-of-a-kind scientific giant known and loved for his brilliance, passion and razor-sharp caustic wit.

On October 11th after a prolonged illness, we lost our beloved Dr. Afrothite Kotsakis, a brilliant physician who touched our lives with her incredible positivity, humour, honesty and genuine caring friendship to everyone blessed to have been part of her life.

Afro and Brian will always have a special place in our hearts and memories.

In March 2020, Dr. Peter Laussen accepted the position of Vice President of Health Affairs at Boston Children's Hospital, an important decision for his family and an excellent opportunity for him to continue to build on his notable achievements. Since he joined Critical Care as Department Chief in 2012, Peter made many contributions to the department and institution, overseeing new directions through recruitment strategies, close collaboration with inter-professional staff in the CCU, a sustainable research structure contributing to increased productivity and growth of a world-renowned training program attracting outstanding trainees from across the world. He served on and chaired many hospital executive committees, contributing to the success of SickKids as well as promoting paediatric critical care and collaboration across the Toronto critical care community through IDCCM. His lab is one of the largest data science programs in paediatric critical care in the world, pioneering new advances in collecting and utilizing continuous physiologic data streaming from CCU bedside as well as new insights into physiology and predictive analytics. This work will continue under the direction of Dr. Mjaye Mazwi, and will benefit from Peter continuing his association with SickKids for ongoing research collaboration with Boston. Peter also fostered an important collaboration with HumanEra (human factors engineers) focussing on systems of critical care delivery and implementation of new practices and technology in the critical care units.

In mid-March the coronavirus COVID-19 changed the landscape of patient care and the world as we knew it, as our staff once again rose to the challenge of new pressures in uncertain times. Coincident with COVID-19, and I was appointed as Interim Chief in the Department, while continuing to also serve in the role of Division Head for Cardiac Critical Care Medicine. At the time, I characterized the challenges we faced by putting them in perspective to the work we do on a daily basis. I recounted numerous times that we had faced sudden change, high-risk unknown circumstances and had come through better and stronger. At the time, I wrote, "as daunting as this challenge is, I know that this is something for which we'll do what we always do. We'll band together, be guided by the best evidence, and in the absence of evidence, by sound judgment and good practice, and we'll manage any difficult times the best we can and come through this feeling like the strong and cohesive team that we are." Looking at things now, several months later, it is clear that my faith in the ability of our team to come together was fully merited.

Education

Under the leadership of Dr. Briseida Mema, our critical care training program continues to be an outstanding world-renowned education program for trainees around the globe. We would also like to acknowledge the innovative skill and effort these past months by Melanie Hamilton, Program Manager and Nella Perri, Fellowship Program Coordinator in managing this stellar program which continues to grow and evolve at a rapid pace.

We would like to recognize and thank our departing Chief Fellow, Dr. Melany Gaetani. Melany's leadership was outstanding and we are excited to hear about her further career development as she heads to Melbourne, Australia at the end of the year for further experience and training. We also welcome Dr. Cory Anderson as our Chief Fellow for the present year.

Research

Under the direction of Dr. Anne-Marie Guerguerian, our research efforts continued to be extremely productive with 90 publications for calendar year 2019 – June 2020. Dr. Anne-Marie Guerguerian continues in the position Chair of the Appointments Committee at The Research Institute. There were numerous awards including:

- Dr. Briseida Mema was announced the winner of the Medical Humanities Education Grant in the Spring 2019 competition for her "Literary Arts in Critical Care" submission.
- CNS led Laura Buckley and supervisor Peter Laussen awarded (\$30,000) from SickKids Psychiatry Endowment Fund Seed Grant Competition 2019 "Paediatric Delirium: Impact on Outcomes and Effect of Systematic Screening"
- Peter Laussen, Roxanne Kirsch, Mjaye Mazwi, Michael-Alice Moga awarded (\$624,950) from Collaborative Health Research Projects (CIHR NSERC partnered) 2019 "Utilizing high resolution physiological data and artificial intelligence to develop a pediatric cardiac arrest prediction tool for integration into bedside clinical practice".
- Jamie Hutchison, Michael-Alice Moga awarded from Heart and Stroke Foundation 2019 (\$273,619) "Discovery of blood biomarkers associated with neuroprotection by inhaled nitric oxide(iNO): A pilot randomized controlled trial in children and adults with cardiac arrest"
- Mjaye Mazwi, Anusha Jegatheeswaran (Mentee) Robert Greer, Azadeh Assadi, Danny Eytan, Sebastian Goodfellow, Andrew Goodwin (Laussen Labs) awarded 2019 from Labatt Family Heart Centre Innovation fund (\$25,000) "Application for Automatic Labeling of Patient Events in the Cardiac Critical Care Unit".
- Mjaye Mazwi, Anna Kazazia (MENTEE) Robert Greer, Sebastian Goodfellow, Andrew Goodwin, Danny Eytan, Cecil Hahn, Peter Laussen awarded from Labatt Family Heart Centre Innovation fund 2019 (\$25,000). "Integration of Electroencephalographic (EEG) data with all other data to create a pervasive postoperative seizure screening program."
- Chris Parshuram awarded from CIHR 2020 (\$1,923,975) "HARM Evaluated: Healthcare Characteristics & Adverse Event Rate Measurement".
- Haifa Mtaweh, Alejandro Floh, Chris Parshuram awarded from AGA Research Foundation 2020 (\$300,000 USD) "Precise nutritional therapy for critically ill children: providing a pragmatic and rational basis for therapy".

IDCCM Awards 2019

Melany Gaetani: Best abstract in Quality Improvement

Brian Kavanagh: The John Granton Award for Outstanding Contributions to Critical Care Education

Haifa Mtaweh: Award for Individual Teaching Excellence

Luciana Rodriguez-Guerineau: Postgraduate Medical Trainee Leadership Award

SickKids Awards 2019

Gail Annich: POWER award, given to teaching faculty who teach learners in the Dept of Paediatrics and have excellent POWER scores.

IDCCM Awards 2020

Karen Dryden Palmer: Interprofessional Award for extraordinary 34 year leadership in fostering pediatric critical care nursing as a clinical specialty.

Seth Gray: Simon Abrahamson Award for outstanding academic performance in Critical Care Medicine

Melany Gaetani: The John Laffey Award for achievement and contribution to Critical Care research

Luciana Rodriguez-Guerineau: Award for Individual Teaching Excellence

SickKids Awards 2020

Cory Anderson: The John F. Edmonds Teaching Award

Department of Critical Care Medicine University Health Network and Sinai Health System



Niall Ferguson, MD

The Critical Care programme at University Health Network and Mount Sinai Hospital is a complex structure involving the provision of intensive care across 4 physically separate geographic sites and 2 separate hospital organizations. We have over 20 intensivists working in our three Level-3 medical-surgical ICUs (our MSICU group), and also count on the involvement of our colleagues in the Peter Munk Cardiac Centre who provide care for patients in the CardioVascular ICU (CVICU) and Coronary ICU (CICU) at Toronto General Hospital.

Personnel

Over the course of 2019-2020 several important personnel changes occurred within our group.

New Faculty: Dr. Nava Maham, Clinician-Quality Improver, TWH
New Clinical Associates: Dr. Chris Yarnell, Sinai

We are excited to welcome our new team members and look forward to their future successes. With mixed emotions we also recognize important departures from our group in 2019. Dr. Wilfred Demajo retired from ICU clinical work, and Dr. Alberto Goffi was recruited to the Unity Health St. Michael's. We wish them both all the best in the next stages of their lives and careers. The executive committee for our group in 2019 was comprised of Drs. Jeff Singh, and Stephen Lapinsky serving as Site Directors for Toronto Western and Mount Sinai, respectively, along with Dr. John Granton as Head, Division of Respiriology, Dr. Liz Wilcox as research representative, and Dr. Christie Lee as Fellowship Director, and Dr. Niall Ferguson, Head of Critical Care Medicine.

Research

We maintained our devolved model of research infrastructure in 2019-20 – with each geographic site managing research coordinator resources and a local research lead for each site – Dr. Elizabeth Wilcox at TWH, Dr. Lorenzo Del Sorbo at TGH and Dr. Michael Detsky at Sinai. We were also delighted that Dr. Liz Wilcox was named as the 2019 recipient of the IDDCM Scholar Award.

2019 was another excellent year for our research group. Our MSICU group of 13 investigators lead and collaborate in significant numbers of high-impact publications. This group has published more than 1300 unique papers, with 625 of these coming in the last 5 years. Our grant capture was also strong (see individual reports). Key research programmatic themes arising from within our group include: ARDS & Mechanical Ventilation; Long-Term Outcomes after ICU; Extra-Corporeal Life Support; Diaphragm Dysfunction; Neuro-critical Care; and Critical Care Oncology.

Education

Our site education leads are Dr. Ghislaine Douflé for TGH, Dr. Christie Lee at Sinai, and Dr. Ian Randall took over from Alberto Goffi at TWH – they continue to do a phenomenal job of reinvigorating the educational experience for trainees of all levels at these sites. Dr. Christie Lee continued as Director of the International Fellowship Director at UHN/SHS – thanks to her leadership we continue to attract and train outstanding clin

University of Toronto Critical Care Training Programs (Adult), 2019-2020



David Hall, MD

IDCCM Education Program 2019-2020

The University of Toronto is a premier centre for sub-specialty training in Critical Care Medicine. With more than 70 registered trainees, it continues to be the largest Adult Critical Care training program in Canada.

We have continued to attract Clinical Fellows from around the world to our Hospital Based Critical Care Medicine Fellowships. These trainees bring a wealth of knowledge and continue to enrich our program with their diverse backgrounds and training.

Our Royal College (RC) Adult Critical Care Medicine training program has 17 trainees from various backgrounds including Internal Medicine, Gastroenterology, General Surgery, and Anesthesia.

The COVID-19 pandemic placed significant strains on our trainees and faculty. It challenged us to deliver training in novel ways, in times of great uncertainty and with little lead time or preparation. Despite all the challenges everyone rose to the challenge. Trainees were redeployed to areas of clinical need, education programs were altered and adapted, and curricula were redesigned

Our Program

As of July 2019 our Royal College training program has fully transitioned to **Competency Based Medical Education** (CBME). Formative workplace assessments have been introduced, in addition to In-Training Assessment Reports (ITARs), as well as more tailored educational plans structured to meet Critical Care Medicine **Entrustable Professional Activities** (EPAs). All RC adult trainees have an academic advisor to help coach them through the process of CBME as well as to help them develop individualized learning plans. The EPAs allow for direct feedback on key competencies as the trainees progress through the four stages of training; Transition to Discipline, Foundation of Discipline, Core of Discipline, and Transition to Practice

A special thank you to our portfolio leads in continuing to head the specific initiatives within **Competency Based Medical Education:**

Curriculum Development & Evaluation – **Dr. Dominique Piquette**

Scholarly Activity – **Dr. Dominique Piquette**
Trainee Assessment – **Dr. Christie Lee**
Mentorship & Wellness – **Dr. Shelly Dev**

Art Slutsky Day 2020

This year's Art Slutsky day was a tremendous success and was offered in a virtual format. Dr. Art Slutsky was the keynote speaker discussing Controversies in COVID-19.

The residents and clinical fellows awarded the *John Granton Award*, for outstanding contribution to Critical Care Education, to **Dr. Alberto Goffi** in recognition of his support and significant contribution to the Interdepartmental Division of Critical Care Medicine Education Program.

The Education & Residency Program Committee awarded the *Simon Abrahamson Award*, for outstanding academic performance in Critical Care Medicine, to **Dr. Seth Gray and Dr Federico Angriman**, for their leadership at the Divisional and University level, as well as for their exemplary clinical educational work.

The John Laffey Award for achievement and contribution to Critical Care Research was awarded to 2 IDDCM trainees, **Dr. Melany Gaetani, and Dr. Michael Sklar** for their exemplary work in Critical Care research.

The site-specific winners for excellence in teaching were: **Dr Luciana Rodriguez Guerineau** (Hospital for Sick Children), **Dr. Michael Detsky** (Sinai Health System), **Dr. Jan Friedrich and Dr. Karen Burns** (St. Michael's Hospital), **Dr. Cameron Guest** (Sunnybrook Health Science Centre), **Dr. Eddy Fan** (Toronto General Hospital), **Dr. Victoria McCredie** (Toronto Western Hospital), and **Dr. Phil Shin and Dr Donna McRitchie** (U of T-affiliated community hospitals, NYGH).

We concluded the year graduating **Drs. Thomas Bodley, Jasmine Grenier, Taylor Kain, Jordan Nantais, Raid Shaarbaf, Michael Sklar, and Bijan Teja** from the Critical Care Residency Program. We look forward to following them in their continued career development and success!

Distinction

Dr Alberto Goffi was the recipient of this year's Frank Rutledge award.

Canadian Resident Matching System (CaRMS 2019)

I am pleased to announce that the following physicians have joined in the Adult Critical Care Medicine Residency Program:

Maha Al Mandhari-Anesthesia, Toronto

Ahmed Al Kathlan-Internal Medicine, Saudi Arabia

Keith Gunaratne-Internal Medicine, Toronto

Mathieu Hylands-General Surgery, Sherbrooke

Cameron Landry- Internal Medicine, Toronto

Alyssa Louis- Internal Medicine, Toronto

Abhinay Sathya- Internal Medicine, Toronto

Ann Zalucky- Internal Medicine, Toronto

Chief Fellows & Residents

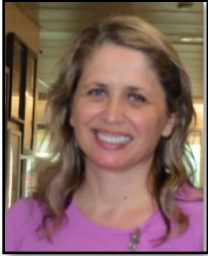
I would like to thank our Chief Resident **Maria Jogova**, as well as our Critical Care Chief Fellow, **Dr. Tasneem Mehesry**. They continue to demonstrate excellent leadership in representing our trainees and are wonderful ambassadors for the IDCCM Resident and Fellowship programs.

We would also like to welcome our new Chief Resident, **Dr. Vatsal Trivedi** and Chief Fellow, **Dr. Elif Cizmeci** for the upcoming 2020-2021 year!

The Future

Our on-site review by the Royal College will occur in November 2020. This will be a virtual visit by the Royal College accreditors and our first accreditation visit under the new Canadian Excellence in Residency Accreditation (CanERA).

University of Toronto Critical Care Training Programs (Paediatric) 2019-2020



Briseida Mema, MD

PCCM Education Program 2020-2021

The Paediatric Critical Care Medicine (PCCM) Program seeks to foster the development of physicians towards clinical excellence and the advancement of the field of pediatric critical care medicine globally. Our trainees have a natural desire for discovery, and are imaginative and creative thinkers, active learners, and will make a positive impact by advancing the field of paediatric critical care medicine wherever their journey takes them. The success of our program lies in the diversity of our faculty and trainees and the breadth of the educational opportunities.

Our Program

The introduction of **Competency by Design** (CBD) last year has brought some new changes to the PCCM program. In addition to the ITARs, formative assessments have been introduced in addition to the more tailored educational plan structures to meet the Paediatric Critical Care Medicine **Entrustable Professional Activities** (EPAs). As the program continues to grow, we strive to provide a CBD curriculum to Canadian and International physicians. Our training program thrives on longitudinal close supervisory relationships, a robust assessment program within the workplace, and simulations, allowing an easy transition to CBD. Our education program combines training in advanced technology and AI with physiology, bedside clinical examination, and human compassionate care.

Our Curriculum

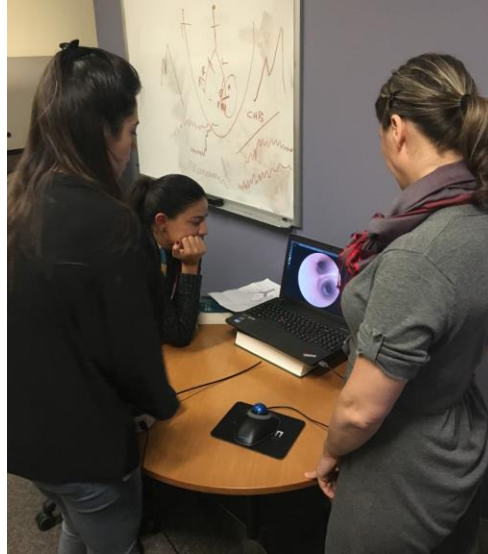
The PCCM program provides a variety of curricula to Residents and Fellows to encourage their development as intensivists. In addition to teaching on topics across the Critical Care Medicine Competency Requirements, we teach the following topics through a longitudinal curricula: Wellness, Train the Teacher, Mechanical Ventilation, Bioethics, Cardiac Critical Care, Bronchoscopy, POCUS and US Guided Procedures, Clinical Epidemiology, ECLS (and ECMO Training Days), Technical Skills Procedural Boot Camp, amongst others! Some of the curricula taught are highlighted below:

Medical Humanities

Made possible by the University of Toronto's Faculty of Medicine 2019 Medical Humanities Education Grant, Drs. Mema and Helmers, along with Miss K. Min (MA, PhD candidate), developed a "Literary Art Curriculum". This curriculum allowed both Residents and Fellows to share important life experiences and connect with their emotions as an intensive care clinician that builds resilience of clinicians and compassion for the patients we care for. Ultimately, the writers, through various styles including poems, reflections, letters, short stories and anecdotal comparisons triggered by clinician's experience, all demonstrated how professional fulfillment can be a potent antidote to burnout and a meaningful answer to why we, as medical professionals, continue to work in such a strenuous field.

Procedural Training through Simulation

We provide a longitudinal and robust curriculum in US guided procedures and bronchoscopy through innovative and state of the art simulation models and instructional design. In an era of shorter duty hours and increased Resident and Fellow numbers, these curricula allow fellows to develop their clinical and procedural skills both efficiently and effectively.



Drs. Briseida Mema and Luciana Rodriguez Guerineau facilitated the 2019 Bronchoscopy Training and Procedural Session.

The Wellness Curriculum

Dr. Roxanne Kirsch, the Wellness Director has been leading a robust curriculum with a combination of social activities for Residents, Fellows and Faculty to connect in addition to frequent debrief sessions. The Social Committee organized many gatherings in-person pre-COVID era: a friendly Jeopardy competition amongst the Critical Care Staff Physicians and the Residents and Fellows, secret Santa, Karaoke, pub night, funny awards, and many more! During the pandemic, the Social Committee ensured that both Residents and Fellows were able to meet virtually, and hosted game nights, Jeopardy, trivia nights and Dinners via Microsoft Teams.



P 1. Drs. Lennox Huang and Roxanne Kirsch attended the December 2019 Trivia Social to give the trainees some Friendly Competition.

P 2. Attendees at the December Trivia Social demonstrating their competitive side!

The Extracorporeal Life Support (ECLS) Curriculum

The ECLS program works to develop a life support system that keeps safety as the core consideration but also makes for a straightforward, fast and efficient assembly, ease of transport, and small prime volume. With this in mind, PCCM Residents and Fellows participate in the ECLS program to provide care for our patients and families throughout their time in our program. To develop their skills, the ECLS team hosts annual simulation sessions (along with bi-monthly training days and lectures) to support the trainees and help them advance as intensivists.



The ECLS team leading simulation sessions in the unit.

TACTICS 2019

On November 9, 2019, SickKids hosted the 3rd annual TACTICS Simulation Day. TACTICS (Training & Assessment of Clinicians in Teams in Intensive Care through Simulation) is an intensive one-day national pediatric critical care simulation program for training and assessment of pediatric critical care trainees within a team context. Trainees from eight programs across the country attended and were joined by respiratory therapists and thirteen registered nurses from SickKids hospital. The attendees were divided into eight primary teams (two MDs, one RT and one RN) and rotated through eight high-fidelity simulation scenarios. The scenarios were developed, facilitated and assessed by local and visiting Canadian and international intensivists. In all, about 85 people participated, facilitated, and contributed to this year's event.

During the extended debriefing session, all participants were asked for their evaluation of the various scenarios, facilitators and day overall. The highest-rated facilitators were given an award in honour of Afrothite Kotsakis, whose vision of a national simulation day was instrumental in the event's establishment and success. The award recipients of the 2019 Afrothite Kotsakis award were the NeuroCritical Care Case Facilitators: Drs. Nicole McKinnon, Rishi Lalgudi-Ganesan, Geraldine Petersen and Sophie Joseph.



Teams bond during a warm-up exercise in the morning before the stations begin.



Dr. Mema reflects on the contributions of Dr. Afrothite Kotsakis and announces the facilitation award named in her honour.

Resident and Fellow Appreciation Week

On February 10th, the Program Director and PCCM Education Program organized one-week of activities for the Residents and Fellows Appreciation Week. Our trainees participated in Jeopardy Rounds, Fellows vs. Staff Relays, Step Competitions, received complimentary massages, and more! Furthermore, six awards were distributed to our trainees, of which 50 Respiratory Therapists, over 100 Registered Nurses and the 20 trainees voted for!

Trainee awards during Resident and Fellow Appreciation Week:

The Most Agile Laryngoscopist for Elegant Intubations: **Dr. Jorge Gonzalez**

The Most In-Depth Knowledge of Mechanical Ventilation: **Dr. Stephanie Reynaud**

The Most Collegial: **Dr. Cory Anderson**

The Most Timely Assessments of Patients: **Dr. Jessica White**

The Most Polished Procedurals: **Dr. Mariella Vargas-Gutierrez**

Creating the Most Harmonious Working Relationships: **Dr. Seth Gray**



Resident and Fellow Appreciation Week Award Winners (from left to right): Drs. Cory Anderson, Melany Gaetani, Jessica White, Briseida Mema, Seth Gray, Stephanie Reyanud, and Mariella Vargas-Gutierrez

PCCM Scholarly Project Showcase 2020

Under the leadership of our Research Director, Dr. Anne-Marie Guerguerian, the PCCM Program hosted a Departmental Scholarly Project Fair on Tuesday June 2nd to showcase Resident and Fellow academic and research productivity while they provided a comprehensive overview and valuable insights on their current work. Trainees presented over 50 abstracts and demonstrated their findings, while some spoke about their academic journey and having the opportunity to showcase their published work and research

experiences to their colleagues. To encourage their hard work, Drs. Anne-Marie Guerguerian, Alejandro Floh and Chris Parshuram acted as judges and distributed awards to the best projects presented.

The first place award recipients for the PCCM Scholarly Project Showcase 2020 was Dr. Seth Grey who wrote “Association of enteral feeding practices and frequency of necrotizing enterocolitis in critically ill neonates with Congenital Heart Disease”. Furthermore, the award recipients for second place were Dr. Melany Gaetany, who wrote “Precision of pharmacokinetic parameters in children: A systematic review”, and Dr. Jessica Nicoll, for her paper on “Pediatric functional status within one year of critical illness preliminary report of a systematic review and meta-analysis”

Art Slutsky Day 2020

In lieu of the global pandemic, this year’s Art Slutsky Day 2020 festivities was celebrated virtually. With the irreplaceable spirit of the IDCCM members, it was a fun afternoon and a great celebration in honor of the 18th annual Art Slutsky Research Day. While the IDCCM Chair and Faculty Members provided an overview on their current work, our trainees also contributed by presenting their current work, including abstracts and research to the IDCCM and University Community.

Continuing Education and Graduate Studies for PCCM Trainees

This past academic year, Drs. Iva Bursac and Jessica White completed the Stepping Stones program at the Centre for Faculty Development. At present, Drs. Cory Anderson, Catherine Proulx, and Veronique Masy are enrolled in the program. Furthermore, Dr. Prashant Aravind and Dr. Omar Al Dafaiei are enrolled in the SickKids Teaching Scholars Program, Dr. Jessica White is starting her Masters of Education at the Ontario Institute for Studies in Education (OISE), and Dr. Melany Gaetani is pursuing her Masters of Sciences in epidemiology at the Institute of Health Policy, Management and Evaluation (IHPME). Finally, Dr. Jessica Nicoll is pursuing her PhD at the IHPME. Congratulations to all of our trainees who are enrolled in continuing education programs and graduate studies; we are very proud of you all!

Chief Fellows & Residents

I would like to thank our Chief Fellow, Dr. Melany Gaetani, as she continued to demonstrate excellent leadership in representing our trainees as a wonderful ambassador to the PCCM Program. Melany has led very skillfully during high and low “tides”, especially during these unprecedented times. She is an amazing clinician and a great role model, and has won numerous research and leadership awards. She is pursuing a Graduate Degree at the IHPME and has made initial contributions to the research in the field of pharmacology and error.

I would also like to welcome our new Chief Fellow, Dr. Cory Anderson. Cory is an amazing colleague and a dedicated doctor. Cory is pursuing his studies in Medical Education and is enrolled in the “Stepping Stones Program” at the Center for Faculty Development, University of Toronto. Throughout his training, Cory has received multiple Teaching, Role Model and Collegiality Awards, a testimony to who he truly is. Cory has a strong interest in Medical Humanities and co-leads the “Literary Arts Curriculum” and assessment through simulation.

Awards

It is with great pride and pleasure that we announce that Dr. Melany Gaetani was the recipient of the **2020 Postgraduate Medical Trainee Leadership Award**. There are approximately 2000 trainees registered through PGME and eligible for this award. Melany’s nomination was supported by several staff physicians, her trainee colleagues, the clinical nurses’ specialist group, and the Education Program Manager. What makes us even prouder as a program is that our trainees received this award for two years in a row; Dr. Luciana Rodriguez Guerineau was the recipient in 2019. Congratulations Melanie, we are very proud of you!

The IDCCM Education Program Committee awarded the **John Laffey Award** for achievement and contribution to Critical Care Research to Dr. Melany Gaetani, for her efforts towards advancing Critical Care Research.

The IDCCM Education Program Committee awarded the **Simon Abrahamson Award** to Dr. Seth Gray, who was recognized for his outstanding academic performance in Critical Care Medicine, as well as his academic and research productivity, and leadership.

The site-specific **Individual Teaching Excellence** award for SickKids was given to Dr. Luciana Rodriguez Guerineau, for her prominent leadership, wonderful collegiality, and her contribution to the Critical Care Medicine Education Program.

The 2020 recipient of the **John F. Edmonds Teaching Award** was Dr. Cory Anderson, who received this award due to his positive and optimistic attitude, his dedication towards teaching, as well as his leadership and collegiality.

Trainees Nominated the following Faculty for Awards in 2020

- Dr. Mjaye Mazwi: Nominated for the PGME Teaching Excellence Award
- Dr. Chris Parshuram: Nominated for the PGME Sarita Verma Award
- Dr. Gail Annich: Nominated for the RCPSC Mentorship Award
- Dr. Briseida Mema: Nominated for the RCPSC Program Director of the Year Award
- Ms. Melanie Hamilton: Nominated for the PGME Program Administrator Award and the RCPSC Program Administrator of the Year Award

PCCM Funding Awards

Congratulations to our PCCM Fellows **Dr. Melany Gaetani** and **Dr. Stephanie Reynaud** for their contribution as Co-applicants in successful CCM Grant applications. Dr. Melany Gaetani is a co-applicant in Dr. M. Post's UofT grant "Serum Biomarker Profile in Children with COVID-19 infection", and Dr. Stephanie Reynaud is a co-applicant in Dr. A. Floh's LHFC grant "Kidney and blood pressure outcomes in children treated with ECMO: population-based study".

Also, congratulations to Dr. Jessica Nicoll for her scholarship from the Clinician Scientist Training Program through the Research Institute at SickKids. Jessica has received her funding in March, and will be using it toward her PhD starting August.

PCCM Trainee Publications for the 2019-2020 Academic Year

We would like to congratulate our Residents and Fellows on their publications this semester! Please see below for some of their work:

- **Gaetani M**, Parshuram C. The Error-berg: Reconceptualizing Medical Error as a Tool for Quality and Safety. *Anesthesiology*. 2019.
- **Gaetani M**, Frndova H, Seto W, Parshuram C. Pharmacotherapy in Critically Ill Children: A Retrospective Review of 17,199 Admissions. *Pediatr Crit Care Med*. 2020.
- **Gaetani M**, Tomlinson G, Yasseen B, Uleryk E, Parshuram C. Precision of Pharmacokinetic Parameters in Children: A Systematic Review. *Journal of Hospital and Healthcare Administration*. 2020;4(1):1-12.
- **Lehr AR**. Life or Linen. *Intensive Care Med*. 2020;46(9):1800-1801.

- **Maratta C**, Pottera RM, Van Leeuwen G, Castillo Moya A, Raman L, Annich GM. Extracorporeal Life Support Organization (ELSO): 2020 Pediatric Respiratory ELSO Guideline. ASAIO J. 2020;66(9):975-979.
- **Maratta C**, Hutchison K, Moore GP, Bagshaw SM, Granton J, Kirpalani H, Stelfox HT, Ferguson N, Cook D, Parshuram CS. In-House, Overnight Physician Staffing: A Cross-Sectional Survey of Canadian Adult Intensive Care Units.
- Min K, **Lehr AR**, Mema B. Human Amnesia. Chest. 2020 Accepted for publication.
- Min K, Buckley L, **Aravind P, Leal A, Anderson C**, Mema B. Apologia pro vita sua. Academic Medicine. 2020 Accepted for publication.
- **Sao Pedro T**, Mtaweh H, Mema B. More is not always better in simulation: Learners' evaluation of a "chest model". ATS Scholar. 2020 In Press.
- **Shevell AH**, Sahakian SK, Nguyen Q, Fontela P, Rohlicek C, Majnemer A. Associations Between Postoperative Management in the Critical Care Unit and Adolescent Developmental Outcomes Following Cardiac Surgery in Infancy: An Exploratory Study. Pediatr Crit Care Med. 2020;10.1097/PCC.
- **Willi B**, Piquette D, Mema B. Mastery in simulation in critical care before transitioning to practice: Are there drawbacks? ATS Scholar. 2020 In Press.



A composite of our 2019-2020 PCCM Residents and Fellows, and our CCM Faculty

Thank you PCCM Residents Fellows and Faculty

Thank you to all the fellows and faculty for an amazing year in unprecedented circumstances. For the Fellows who will be leaving us: Thank you for allowing us to be a part of your journey, and you will always be a part of our SickKids Critical Care Family! With that said, I am going to end with a poem by our Chief Fellow Dr. Melany Gaetani, "A Wind that Blows".

"Swirl and turn and off we go;
Where to next, no one will know.
Ever-present but never the same.
Always returning from whence we came."

Research Summary



Margaret Herridge, Research Director



Hannah Wunsch, Associate Research Director

Virtual Art Slutsky Research Day on ZOOM!! June 16, 2020

COVID-19 couldn't stop our Annual Art Slutsky Day!! This speaks to the irrepressible spirit of the members of our IDCCM. Virtual Art Slutsky Day was another great success and opportunity to come together after a challenging year and to celebrate our IDCCM community at the University of Toronto! We are so delighted to again honour the legacy of Art Slutsky and to celebrate his many important contributions to our diverse pediatric, adult and interprofessional critical care community across the University of Toronto.

The AS Day had another very strong attendance this year of up to **140** faculty, trainees, and other colleagues who joined us through the ZOOM meeting. Faculty judges vetted **45** abstracts encompassing basic and clinical science, quality, physiology and education contributed by our adult and pediatric trainees. As has become the expectation now, the breadth and quality of work remains exceptional and we have so much to take pride in and celebrate within our university group.

Distinguished Speakers:

Dr. Art Slutsky: We were so delighted to have Art serve as our distinguished featured speaker this year and to give a timely and informative talk on “**Controversies in COVID-19**” This served to highlight early work that has been published about COVID-19 patients and how much more we need to learn about individual susceptibility, clinical manifestations, treatment and outcomes. **SO grateful for your insights, Art!!**

Drs. Maria Jogova (with Mike Sklar) and Melany Gaetani as the Adult and Pediatric Chief Fellows spoke about **Wellness and Connectedness during COVID-19**. They shared some wonderful videos celebrating the bravery, dedication and commitment that our fellows have shown consistently throughout the COVID-19 crisis.

We continued our yearly tribute to transitioning faculty entitled “**Transitions**”. We were honoured to have **Dr. Steven Schwartz** pay tribute to our respected SICKKIDS faculty members.

Dr. Peter Laussen served SICKKIDS with great distinction as its critical care leader, highly distinguished researcher and valued and committed member of our IDCCM community. He is currently leading the Critical Care Group at Boston Children's Hospital. We tragically lost our treasured colleague **Dr. Afrothite**

Kotsakis in October 2019 and she was warmly remembered for her exceptional clinical expertise, and also for her compassion and enthusiasm for a life lived fully and completely. She will be greatly missed by our community.

We celebrated our trainees, interprofessional colleagues and faculty with many awards and these were listed in detail in the summer newsletter sent to our membership. The AS Day was also an opportunity to publicly acknowledge many of our faculty for their outstanding leadership and service to our community during COVID and also our education leads who devoted so much time and energy to support our fellows through the first wave of the pandemic.

Alliance Day COVID-19 was heating up in April 2020 and, sadly, this led to the postponement of Alliance Day this year. The IDCCM Alliance is an initiative to build research integration across sites in the University of Toronto IDCCM. This yearly half day event is devoted to focused presentations/high profile speakers and panel discussion to foster discussion and planning of targeted research collaborations. Prior events have focused on building connectedness in areas ranging from education to Outcomes and follow-up care in Oncologic critical care. We eagerly anticipate the next instalment of Alliance Day in 2021!

First ever zoom CRIP. Tuesday, September 29th. This session included a presentation by Dr. Christopher Yarnell and brief summaries of ongoing research from IDCCM faculty from across the city.

Nuts and Bolts of Research (NABOR) zoom Grant writing session. Thursday, October 15th from 3-4:30 p.m. An hour and a half with IDCCM faculty providing basic tips on grant writing. Lots of time for questions. Suitable for all trainees and junior faculty. Open to all members of the IDCCM and Department of Anesthesia.

Visiting Professor Program. Prior to COVID-19 in 2020 we welcomed three visiting professors to the University of Toronto. In January, 2020 Professor Jan Claassen (Columbia University) spoke on "Impairment and recovery of consciousness." In February, Professor Judith Nelson (Memorial Sloan Kettering Cancer Center) spoke on "Death and the Birth and Future of Palliative Care," and squeaking in before COVID hit in March, Dr. Manu Shankar Hari (Guy's and St Thomas' NHS Trust) spoke on "The ABCs of B cells in Sepsis."

Due to COVID we had to sadly defer our in-person Visiting Professors for the rest of the Spring and Fall 2020. However, we kicked off our virtual version with Professor Alain Combes joining us from Paris. He spoke on "Extracorporeal Life Support in Severe ARDS" in September. Stay tuned for more **ZOOM Visiting Professors** this fall, as a way to stay connected with our colleagues around the world. We also look forward to welcoming individuals to Toronto when it is safe again for travel.

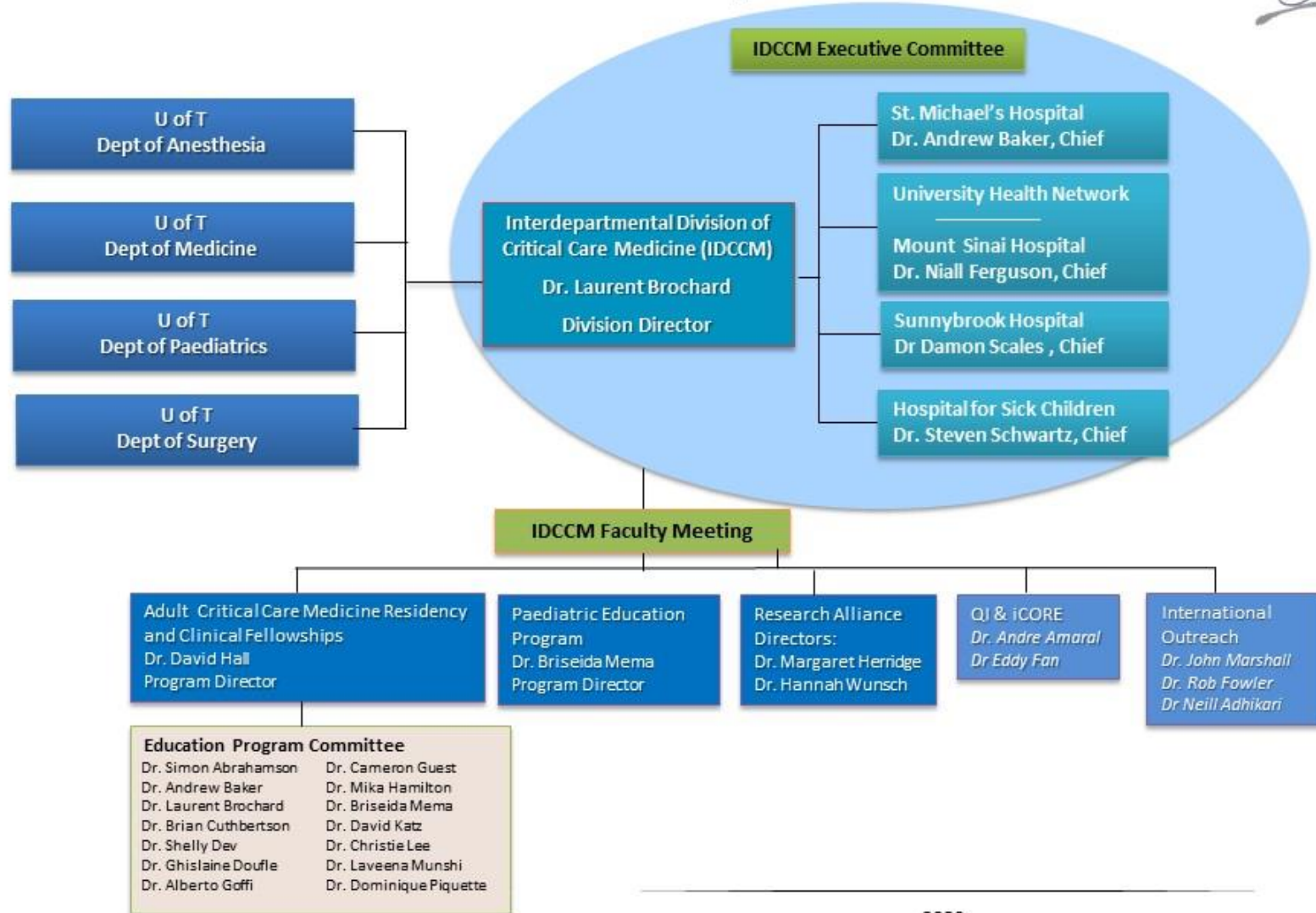
Thanks so much for everyone's support of the IDCCM Research Enterprise!
Warm Wishes for good health as we begin to navigate this second wave of COVID-19.

Margaret Herridge
Research Director

Hannah Wunsch
Associate Research Director

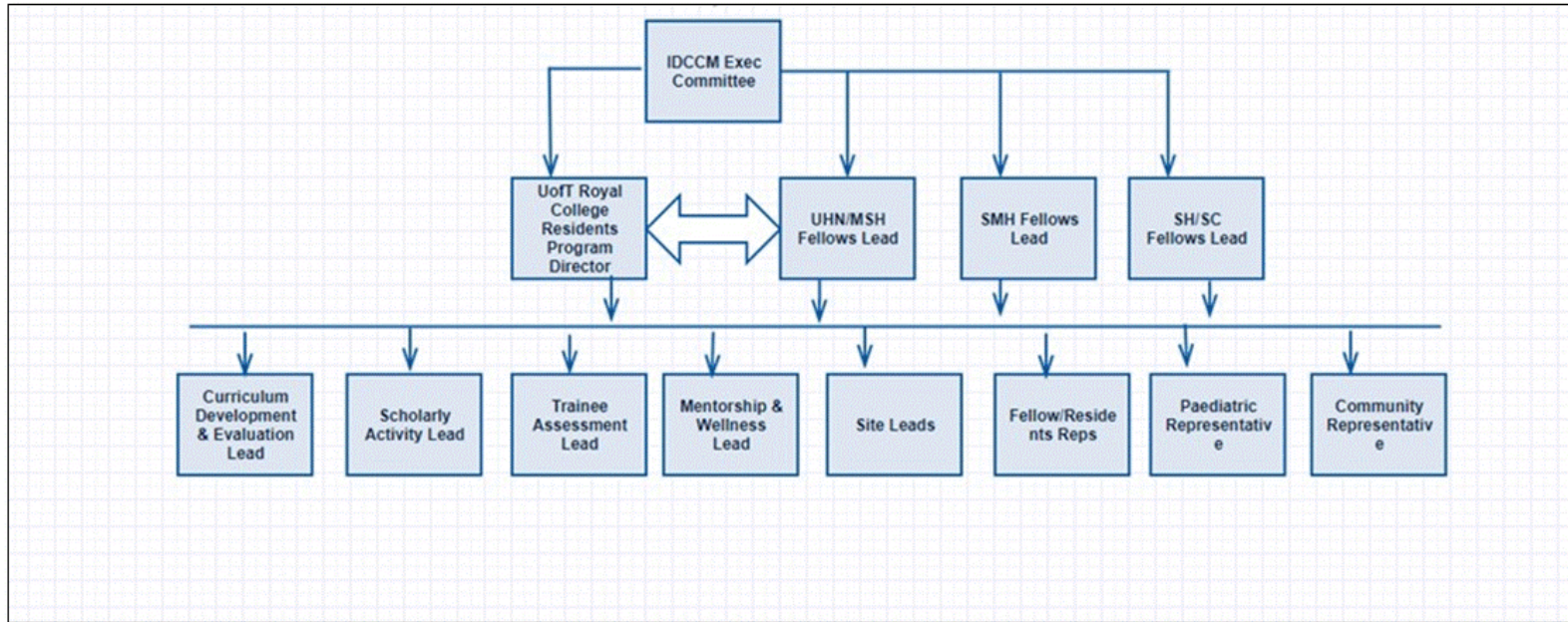


U of T IDCCM Organization Chart



2020

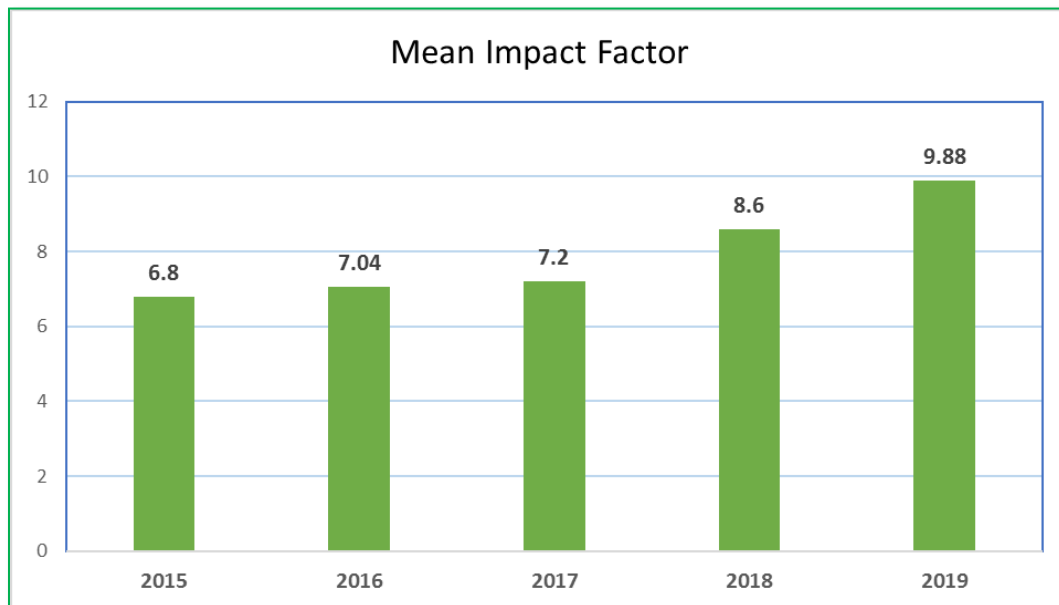
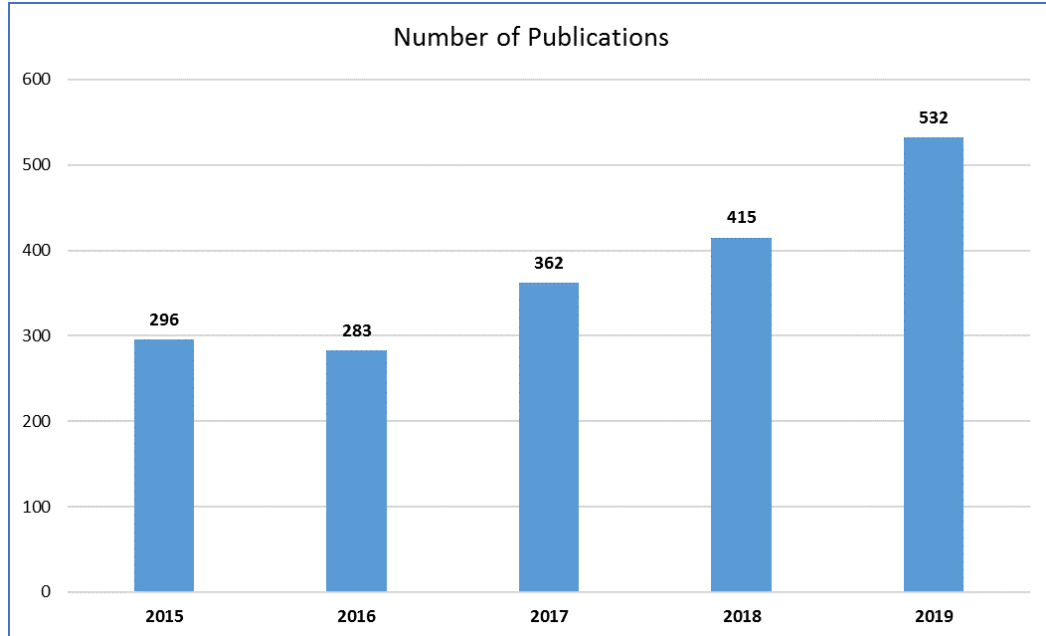
U of T IDCCM Education Committee organization chart



2019-2020

Publications Analysis

5 Years Impact Factor



Total Publications for IDCCM members: 2019 n= 532; 2020(Jan – June) n = 267

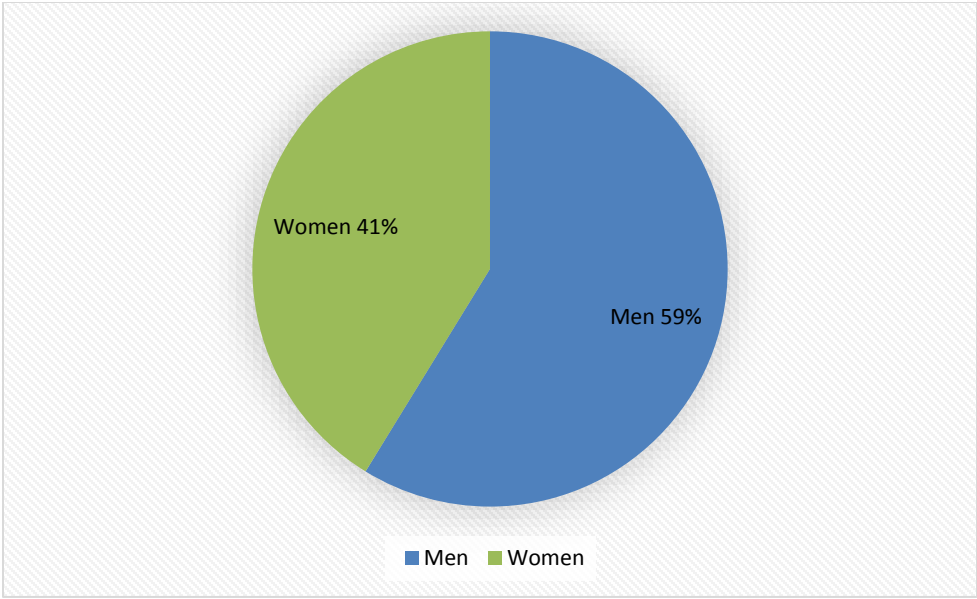
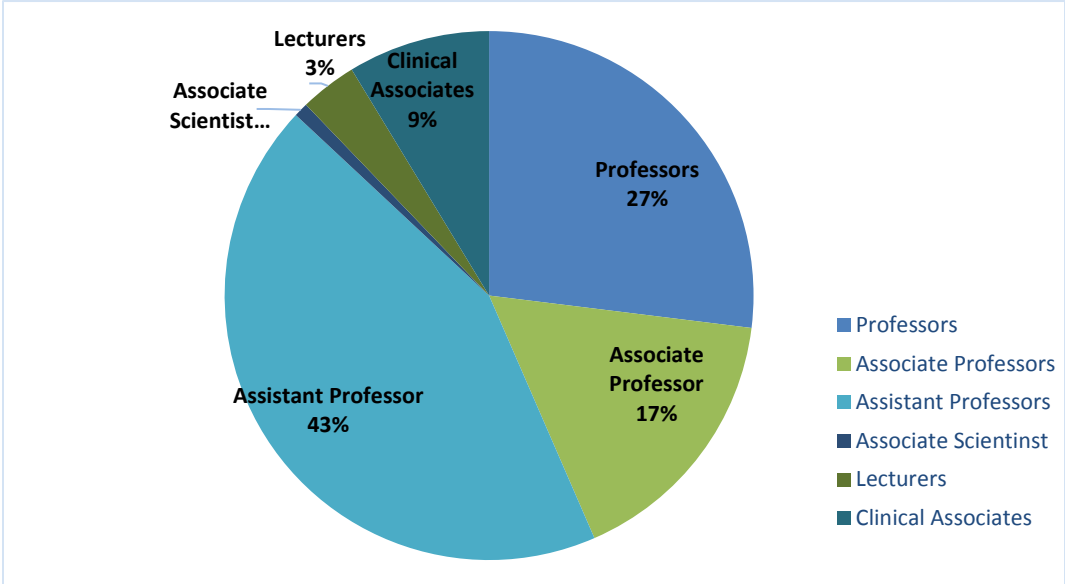
Mean IF = 10

Table: High impact factor journals and main journals for publications

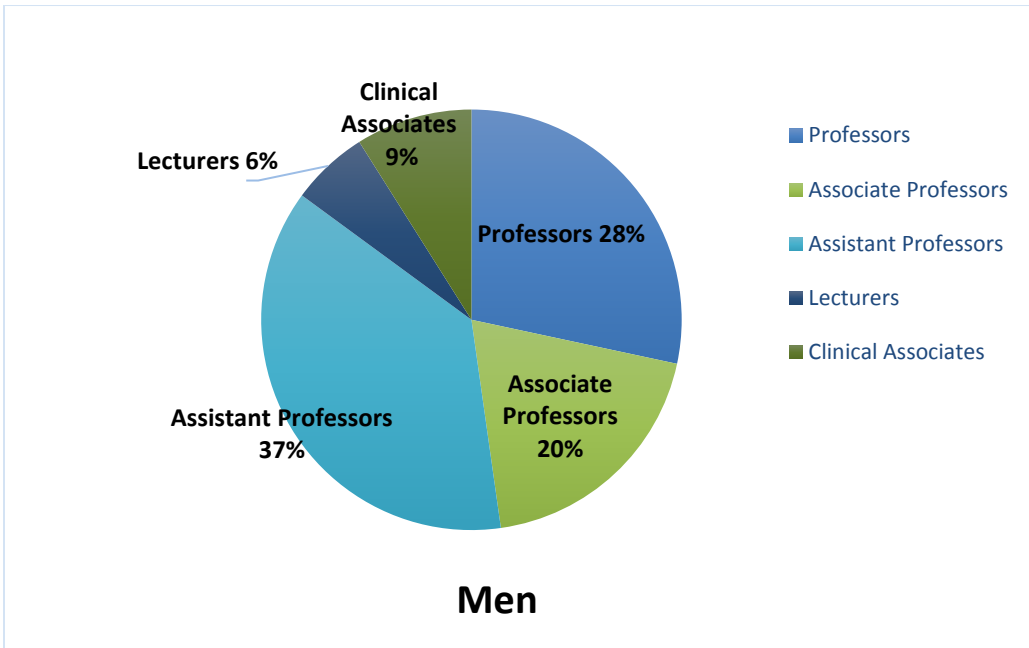
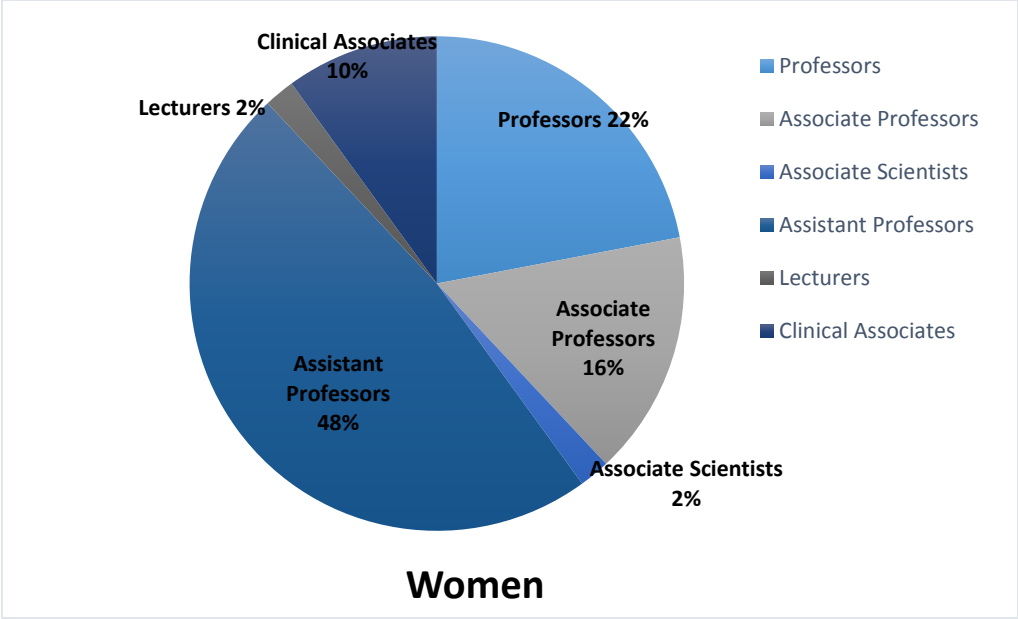
Journal	Impact Factor	n
The New England journal of medicine	74.70	11
The Lancet	60.39	8
JAMA - Journal of the American Medical Association	45.54	21
Nature Reviews Disease Primers	40.689	1
Cell	38.64	1
Nat Rev Microbiol	34.209	1
The BMJ	30.31	1
The Lancet Respiratory Medicine	25.09	8
Circulation	23.60	8
European Heart Journal	22.673	7
Annals of Internal Medicine	21.317	3
Annals of Surgery	21.317	2
Journal of the American College of Cardiology	20.59	8
Intensive Care Medicine	17.68	60
American Journal of Respiratory & Critical Care Medicine	17.45	22
Chest	8.31	8
CMAJ	7.74	12
Critical Care Medicine	7.41	41
Anesthesiology	7.07	9
British Journal of Anaesthesia	6.88	13
Critical Care	6.41	19
JAMA Network Open	5.03	12
Annals of the American Thoracic Society	4.84	6
Resuscitation	4.572	19
Canadian journal of anaesthesia	3.78	30
Journal of Intensive Care Medicine	3.14	11
Current Opinion in Critical Care	2.92	8
Pediatric Critical Care Medicine	2.85	9
Transfusion	2.80	6
Neurocritical Care	2.72	7
Journal of Critical Care	2.69	15
BMJ Open	2.50	13
Journal of Cardiothoracic and Vascular Anesthesia	2.26	10
Respiratory Care	2.07	8

Faculty

University Rank Full-Time Faculty

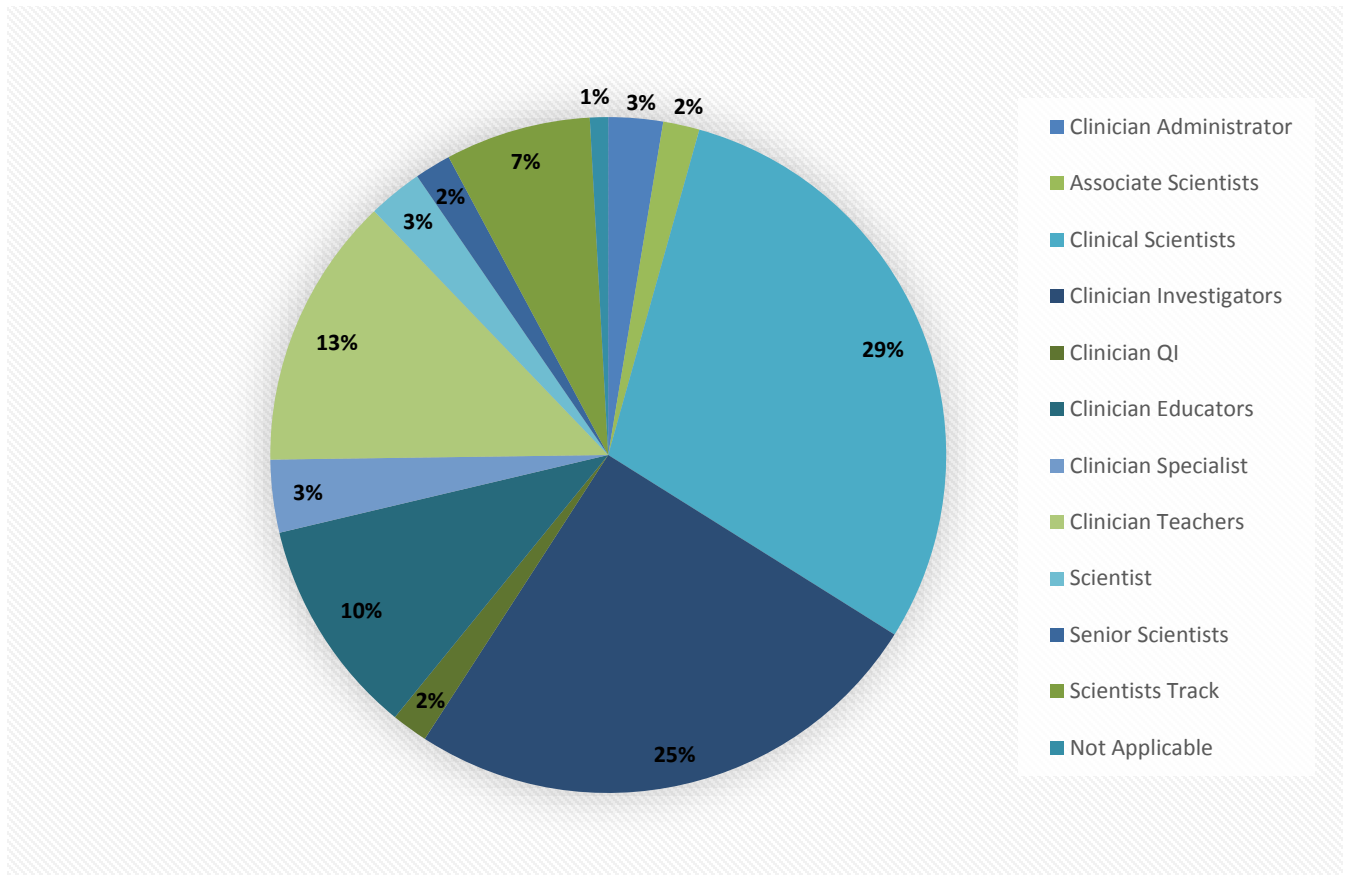


Percentage of Men /Women



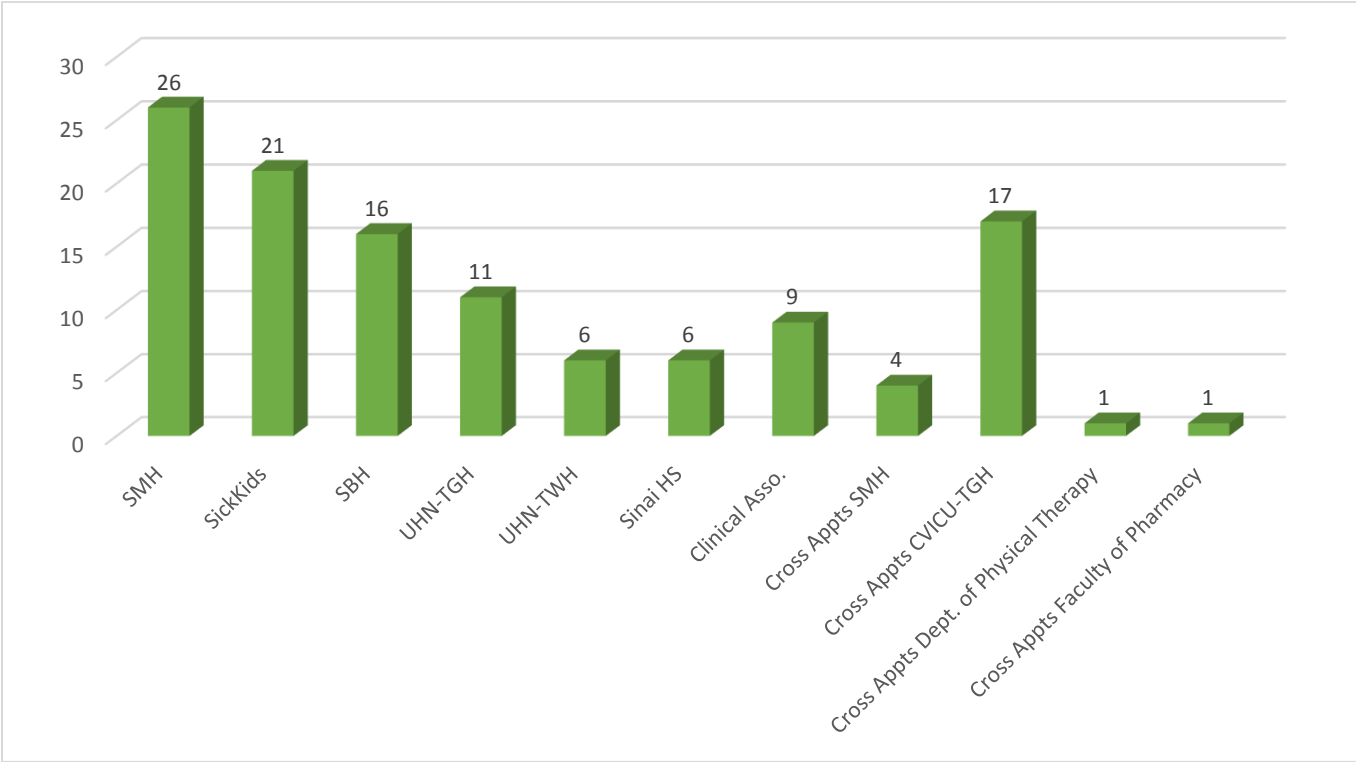
Job Description Faculty

Clinician Administrator	3
Associate Scientists	2
Clinical Scientists	34
Clinician Investigators	29
Clinician QI	2
Clinician Educators	15
Clinician Specialist	4
Clinician Teachers	15
Scientist	3
Senior Scientists	2
Scientists Track	8
Not Applicable	1



Overall Interdepartmental Summary

Our interdepartmental division consists of 109 faculty members and 9 clinical associates.



APPENDIX

Faculty List

Hospital for Sick Children

Name	University Rank	Research Rank
Annich, Gail	Professor	Clinician Investigator
Christian, Haley	Assistant Professor	Clinician Educator
Floh, Alejandro	Assistant Professor	Clinician Investigator
Gilfoyle, Elaine	Assistant Professor	Clinician Educator
Guerguerian, Anne-Marie	Assistant Professor	Clinician Scientist
Helmerts, Andrew	Assistant Professor	Clinician Educator
Huang, Lennox	Associate Professor	Clinician Specialist
Humpl, Tilman	Associate Professor	Clinician Investigator
Hutchison, Jamie	Professor	Clinician Scientist
Kavanagh, Brian	Professor	Clinician Scientist
Kirsch, Roxanne	Assistant Professor	Clinician Specialist
Laussen, Peter	Professor	Clinician Administrator
Maratta, Christina	Lecturer	Clinician Educator
Mazwi, Mjaye	Assistant Professor	Clinician Specialist
McKinnon, Nicole	Assistant Professor	Clinician Educator
Mema, Briseida	Associate Professor	Clinician Educator
Moga, Michael-Alice	Assistant Professor	Clinician Specialist
Mtaweh, Haifa	Assistant Professor	Clinician Investigator
Parshuram, Christopher	Professor	Clinician Scientist
Rodrigues-Guerineau, Luciana	Assistant Professor	Clinician Educator
Schwartz, Steven	Professor	Clinician Investigator

Sinai Health System

Name	University Rank	Research Rank
Detsky, Michael	Assistant Professor	Clinician Investigator
Lapinsky, Stephen	Professor	Clinician Investigator
Lee, Christie	Assistant Professor	Clinician Teacher
Mehta, Sangeeta	Professor	Clinician Investigator
Munshi, Laveena	Assistant Professor	Clinician Investigator

St. Michael's Hospital

Name	University Rank	Research Rank
Abrahamson, Simon	Associate Professor	Clinician Educator
Ahmed, Najma	Professor	Clinician Educator
Baker, Andrew	Professor	Clinician Scientist
Brochard, Laurent	Professor	Clinician Scientist
Burns, Karen	Associate Professor	Clinician Scientist
Darraah, William	Assistant Professor	Clinician Teacher
Dos Santos, Claudia	Associate Professor	Clinician Scientist
Friedrich, Jan	Associate Professor	Clinician Scientist
Goffi, Alberto	Assistant Professor	Clinician Teacher
Gray, Sara	Assistant Professor	Clinician Teacher
Hall, David	Assistant Professor	Clinician Teacher
Houston, Patricia	Professor	Clinician Administrator
Kataoka, Mark	Assistant Professor	Clinician Teacher
Klein, David	Assistant Professor	Clinician Teacher
Lawless, Bernard	Associate Professor	Clinician Teacher
Lee, Warren	Assistant Professor	Clinician Scientist
Marshall, John	Professor	Clinician Scientist
Mazer, David	Professor	Clinician Scientist
Pronovost, Antoine	Assistant Professor	Clinician Scientist
Rigamonti, Andrea	Assistant Professor	Clinician Scientist
Sinderby, Christer	Assistant Professor	Staff Scientist
Slutsky, Arthur	Professor	Staff Scientist
Teja, Bijan	Lecturer	Clinician Teacher
Tousignant, Claude	Assistant Professor	Clinician Educator
Wong, Natalie	Associate Professor	Clinician Teacher
Zhang, Haibo	Professor	Staff Scientist

Sunnybrook Hospital

Name	University Rank	Research Rank
Adhikari, Neill	Assistant Professor	Clinician Scientist
Amaral, Andre	Associate Professor	Clinician Quality & Innovation
Chapman, Martin	Assistant Professor	Clinician Educator
Cuthbertson, Brian	Professor	Clinician Scientist
Dev, Shelly	Assistant Professor	Clinician Teacher
Fowler, Robert	Professor	Clinician Investigator
Guest, Cameron	Associate Professor	-
Haas, Barbara	Assistant Professor	Clinician Scientist
Piquette, Dominique	Assistant Professor	Clinician Educator
Rose, Louise	Associate Professor	Clinician Scientist
Rubinfeld, Gordon	Professor	Clinician Scientist
Scales, Damon	Professor	Clinician Scientist
Smith, Terry	Assistant Professor	Clinician Teacher
Wunsch, Hannah	Associate Professor	Clinician Scientist

University Health Network

Toronto General Hospital

Name	University Rank	Research Rank
Del Sorbo, Lorenzo	Assistant Professor	Clinician Investigator
Dhar, Preeti	Assistant Professor	Clinician Quality
Douflé, Ghislaine	Assistant Professor	Clinician Educator
Fan, Eddy	Associate Professor	Clinician Scientist
Ferguson, Niall	Professor	Clinician Scientist
Goligher, Ewan	Assistant Professor	Clinician Scientist
Granton, John	Professor	Clinician Investigator
Herridge, Margaret	Professor	Clinician Scientist
Lawler, Patrick	Assistant Professor	Clinician Scientist
Steel, Andrew	Assistant Professor	Clinician Educator

Toronto Western Hospital

Name	University Rank	Research Rank
Demajo, Wilf	Assistant Professor	Clinician Teacher
Hawryluck, Laura	Associate Professor	Clinician Educator
McCredie, Victoria	Assistant Professor	Clinician Scientist
Singh, Jeff	Associate Professor	Clinician Investigator
Wilcox, Elizabeth	Assistant Professor	Clinician Scientist

Clinical Associates

Name	Hospital
Barrett, Kali	Toronto General Hospital
Bodley, Thomas	Sunnybrook Hospital
Filewod, Niall	St. Michael's Hospital
Goddard, Shannon	Sunnybrook Hospital
Kamani, Alya	Sunnybrook Hospital
Leligdowicz, Aleksandra	Toronto Western Hospital
Man, Jeffrey	Toronto Western Hospital
Tillmann, Bourke	Sunnybrook Hospital
Sklar, Michael	St. Michael's Hospital
Spring, Jenna	Sunnybrook Hospital
Urner, Martin	Toronto General Hospital

Cross-Appointed Faculty

St. Michael's Hospital

Name	University Rank	Research Rank
Batt, Jane	Associate Professor	Clinician Scientist
Beck, Jennifer	Assistant Professor	Associate Scientist
Morrison, Laurie	Professor	Clinician Scientist
Smith, Orla	Adjunct Lecturer	Associate Scientist

University Health Network - Toronto General Hospital

Department of Anesthesia, CVICU

Name	University Rank	Research Rank
Ansari, Bilal	Assistant Professor	Clinician Investigator
Bahrey, Lisa	Associate Professor	Clinician Investigator
Dattilo, Kathleen	Assistant Professor	Clinician Investigator
Heggie, Jane	Associate Professor	Clinician Investigator
Jarhani, Marjan	Assistant Professor	Clinician Investigator
Karkouti, Keyvan	Professor	Senior Scientist
Luksun, Warren	Lecturer	Clinician Investigator
Mashari, Azad	Lecturer	Clinician Investigator
Meineri, Massimiliano	Professor	Clinician Investigator
Moreno, Jacobo	Assistant Professor	Clinician Investigator
Murphy, Patricia	Professor	Clinician Investigator
Parotto, Matteo	Assistant Professor	Clinician Investigator
Randall, Ian	Assistant Professor	Clinician Investigator
Snyman, Adam	Assistant Professor	Clinician Investigator
Van Rensburg, Adriaan	Associate Professor	Clinician Investigator
Vegas, Annette	Professor	Clinician Investigator
Wasowicz, Marcin	Associate Professor	Clinician Investigator

University of Toronto – Department of Physical Therapy

Name	University Rank	Research Rank
Reid, Darlene	Professor	Senior Scientist

University of Toronto – Faculty of Pharmacy

Name	University Rank	Research Rank
Burry, Lisa	Assistant Professor	Clinician Scientist

Appendix II: Summary Activity Reports

Please click on the below link to access the activities reports of individual members:

[Summary activities Report Jan 2019-June 2020](#)

Thank you and Happy New Year!!