



IDCCM NEWSLETTER

Issue 3

Welcome to our Summer IDCCM Newsletter!

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We're happy to present you with images of success, innovations, positive actions and results that happened over these last few months in our Division. This is important in a world where every day brings terrible news and shows injustice, frustration and anger. Terrorist attacks in France, Germany, Belgium, Bangladesh, Pakistan, Afghanistan, Iraq or USA (and much more) use all forms of apparent indiscriminate violence, which makes us remaining speechless.

The important goals of our activity, taking care of the most vulnerable patients and trying to reach excellence (see page 5 the excellent results of IDCCM members for the extremely competitive CIHR grants), have a special meaning in those days. Recently, Deborah Cook and her group reported that the ICU could also be a place of spirituality (a concept which goes beyond religion) (*Experiences and Expressions of Spirituality At the End of Life in the Intensive Care Unit*, Am J Respir Crit Care Med, in press). In addition, critical care clinicians and scientists are now well aware that caring for critically ill patients is not limited to the intensive care unit. Looking at the whole patient trajectory is essential in our global approach, an important concept for IDCCM. Obviously the recent results from Towards RECOVER lead by Margaret Herridge and Jill Cameron (NCT00896220; published in NEJM, ARJCCM) -as well as Jane Batt and Claudia Dos Santos, see page 11- reporting the one-year outcome of patients receiving at least a week of mechanical ventilation in our ICUs and of their family caregivers is an important step forward in this new way at considering our work.

I really hope you will enjoy looking at this Newsletter, and you're welcome to read it on the beach...

Dr. Laurent Brochard

Save the Date!

Mini-Retreat Education

September 8, 2016

Vivian & David Campbell
Conference Facility, Munk
School of Global Affairs, Trinity
Site, 1 Devonshire Place

CaRMS Interviews

October 8, 2016

University Club of Toronto
380 University Avenue



Divisional Awards



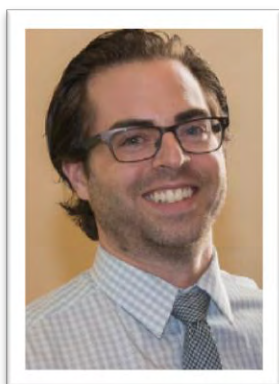
Dr. Neill Adhikari

Received the 2016 IDCCM Humanitarian Award – for outstanding contribution to improving the welfare of others through patient care and scholarly activity.



Dr. Alberto Goffi

Received the 2016 IDCCM John Granton Award – in recognition of his support for education at Toronto Western Hospital, and for progressing the city-wide delivery and development of the Ultrasound Education Program.



Dr. Kevin Shore

Received the 2016 IDCCM Simon Abrahamson Award – for his leadership at the Divisional and University level, as well as for his commitment as Chief Resident and performance throughout his clinical training. Dr. Shore placed second amongst the Canadian candidates sitting the SCCM MCCAP examination this year.



External Awards



Dr. Najma Ahmed

Received the 2016 Royal College AMS/Donald Richards Wilson Award.

Dr. Andrew Baker

Received the 2016 Lifetime Achievement Award of the Trillium Gift of Life Foundation.



Dr. Art Slutsky

Together with Drs. Daniel Durocher, Brendan Frey, Anne-Claude Gingras, and Andreas Laupacis have been nominated Fellows of Royal Society of Canada.



Dr. James Rutka

Received the 2015 Margolese National Brain Disorders Prize.

Dr. Denis Daneman

Received the 2015 Canadian Association of Paediatric Health Centres Contribution to Child Health Award.



Grant Awards

Dr. Simon Abrahamson

Awarded the 2015 -2016 SMHA Innovation Funds project – Point of care lung ultrasound – development and implementation of an education curriculum.

Drs. Lisa Burry & Christie Lee

Awarded 1 of 5 Petit Block Term Grants from the U of T Division of Respiriology.

Dr. Jamie Hutchison

Awarded the CIHR Canadian Traumatic Brain Injury Research Consortium (CTRC) Grant.

Dr. Warren Lee

Awarded the CFI- John R. Evans Leaders Fund (JEFL).

Dr. Dominique Piquette

Awarded the RCPSC Medical Education Research Grant – Programmatic Assessment in the Workplace: A Realist Exploration of Contexts, Mechanisms, and Outcomes in Critical Care Medicine.

Congratulations!

New Positions and University Promotions

Dr. Patricia Houston, Vice Dean, University of Toronto, Faculty of Medicine, MD Program

Dr. Niall Ferguson, Professor, University Health Network

Dr. James Downar, Associate Professor, University Health Network

Dr. Sara Gray, Associate Professor, St. Michael's Hospital

Dr. Lorenzo del Sorbo, Assistant Professor, University Health Network

Dr. Michael Detsky, Assistant Professor, University Health Network



CIHR Grants 2016 at IDCCM

Project Title: Bacteremia Antibiotic Length Actually Needed for Clinical Effectiveness (BALANCE): A Randomized Controlled Clinical Trial

PI's: Nick Daneman and **Robert Fowler**

Co-I's: **Michael Detsky, Elizabeth Wilcox**, et al

Funding Term: 5 years

Funding Amount: \$2,010,635.00 CAD

Project Title: Regulation of Neutrophil (PMH) Inflammatory Function by Caspase-8 Phosphorylation

PI: **John Marshall**

Co-I: Jatinder Juss

Funding Term: 5 years

Funding Amount: \$676,584.00 CAD

Project Title: Brain imaging biomarkers of recovery from sport concussion

PI: Tom Schweizer

Co-PI: Michael Hutchins

Co-I's: **Andrew Baker** et al

Funding Term: 4 years

Funding Amount: \$355,492.00 CAD

Project Title: Opioid use after critical illness

PI: **Hannah Wunsch**

Co-I's: **Eddy Fan, Damon Scales** et al

Funding Term: 2 years

Funding Amount: \$183,480.00 CAD

Project Title: InCURS: Intensive Care Unite Residents Scheduling Study

PI's: **Christopher Parshuram and Dominique Piquette**

Co-I's: **Andre Amaral, Niall Ferguson, Jan Friedrich, Briseida Mema, Damon Scales**, et al

Funding Term: 1 year

Funding Amount: \$100,000.00 CAD

Project Title: Thromboprophylaxis After Significant Traumatic Brain Injury: A Randomized Controlled Trial

PI's: Farhad Pirouzmand and **Damon Scales**

Co-I's: **Robert Fowler, Antoine Pronovost** et al

Funding Term: 1 year

Funding Amount: \$100,000.00 CAD

Project Title: The changing face of trauma care: a comprehensive evaluation of the impact of severe injury on elderly patients

PI's: **Barbara Haas** and Avery Nathens

Co-I's: **Damon Scales**

Funding Term: 1 year

Funding Amount: \$92,500.00 CAD



Faculty New IDCCM Positions



Dr. Margaret Herridge
Director
IDCCM Research

The University of Toronto IDCCM has the depth and expertise to lead the Critical Care world internationally and it is indeed a great honor and privilege for me to serve our Adult and Pediatric Critical Care community in collaboration with Drs. Hannah Wunsch and Laurent Brochard to further strengthen our already strong and vital research enterprise.

Through the summer, I plan to meet with the research group leadership at each of our adult and pediatric hospitals as well as the leadership of our research institutes across the city. I will also make myself available to meet with any of you who may wish to chat one-on-one. These meetings will help to inform the agenda for our first IDCCM meeting to be scheduled for the early fall- date TBD.

Some proposed early agenda items for our IDCCM group will include the following:

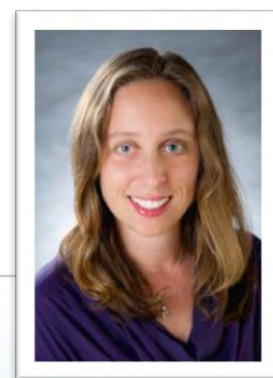
- Due Diligence on the existing site research structure(s)/SOPs/contracts and REB process across hospitals and the generation of a common Alliance SOP.
- Construction of a research working group for the Alliance: to ensure representation of adult and pediatric research site leads, interprofessional research leadership, basic and translational science leadership and patient and family engagement.
- Explore existing models for phase 1 trials at the University of Toronto and build collaborations with IDCCM programs.
- Initiate Community outreach to gauge interest in extending the Alliance to community hospital critical care units to extend our network and our depth for collaboration and recruitment.

I am excited to take on the role of Associate Research Director in the IDCCM and to have the opportunity to work closely with Drs. Margaret Herridge and Laurent Brochard and others to strengthen the research support and community within our university division.

Initially, I will focus on the Visiting Professor and Clinical Research in Progress (CRIP) programs. This is a unique aspect of the research community here in Toronto; many visitors provide the feedback that their experience of attending CRIP has stayed with them and inspired them, and they hope to emulate this experience at their home institutions. We want to ensure a diverse group of international speakers who will engage with our faculty and trainees during their time with us in Toronto. We also want to continue the tradition of meaningful discussions at CRIP, with active participation from across the hospitals and departments.

Looking forward, I hope to improve the support for younger investigators in the department. This may include special grant writing tutorials, and more in-depth research-in-progress sessions, as well as strategic planning for career paths.

Finally, we will be working to start a scholars program for Assistant Professors in critical care. The goal of this program will be to provide operating funds and named professorships to junior investigators. Such early recognition and support at a critical stage in a research career can be a key to success. I look forward to working with everyone to strengthen these many aspects of the research experience in critical care in Toronto.



Dr. Hannah Wunsch
Associate Director
IDCCM Research



Education Program New Appointments



Dr. David Katz

Chief Resident
Adult Critical Care Medicine Program

Dr. Katz has been duly elected by his peers as our next Chief Resident for the Adult Critical Care Medicine Program.

David was a resident at the University of Toronto in the Core Internal Medicine Program prior to joining our Residency this year.

Congratulations David!

Dr. Andrew Steel



Dr. Mika Hamilton

Chief Fellow
Adult Critical Care Medicine Program

Dr. Hamilton has been duly elected by her peers as our new Chief Fellow for the Adult Critical Care Medicine Program.

Mika is from the United Kingdom and is a clinical fellow currently based at Sunnybrook Hospital, and will rotate through the University Health Network and Mount Sinai next year.

Congratulations Mika!

Dr. Andrew Steel

Royal College Exam Results

Congratulations!

Aziz Alali - FRCSC, Neurosurgery
Abdulrahman Al Fares - FRCPC, Internal Medicine
David Cape - FRCPC, Internal Medicine
Niall Filewood - FRCPC, Internal Medicine
Anna Geagea - FRCPC, Internal Medicine
Jatinder Juss - FRCPC, Internal Medicine
David Katz - FRCPC, Internal Medicine
Tiffany Lee - FRCPC, Internal Medicine



Art Slutsky Day

June 14, 2016

On June 14th we welcomed more than 120 faculty, trainees, and other colleagues to the University Club of Toronto for Art Slutsky Day.

The Divisional Academic Day began as a half-day program in 2002 (see figure below) and has been re-branded and referred to as “Research Day” and “Residents’ Day” over the past decade. There have been many global leaders in Critical Care invited as guest speakers, and in fact the past ten years of abstract submissions now reads like the very “Who’s who” of Critical Care. With some absences, this year’s event was the 14th occurrence and the second such event after naming it in honour of Dr. Slutsky in 2015.

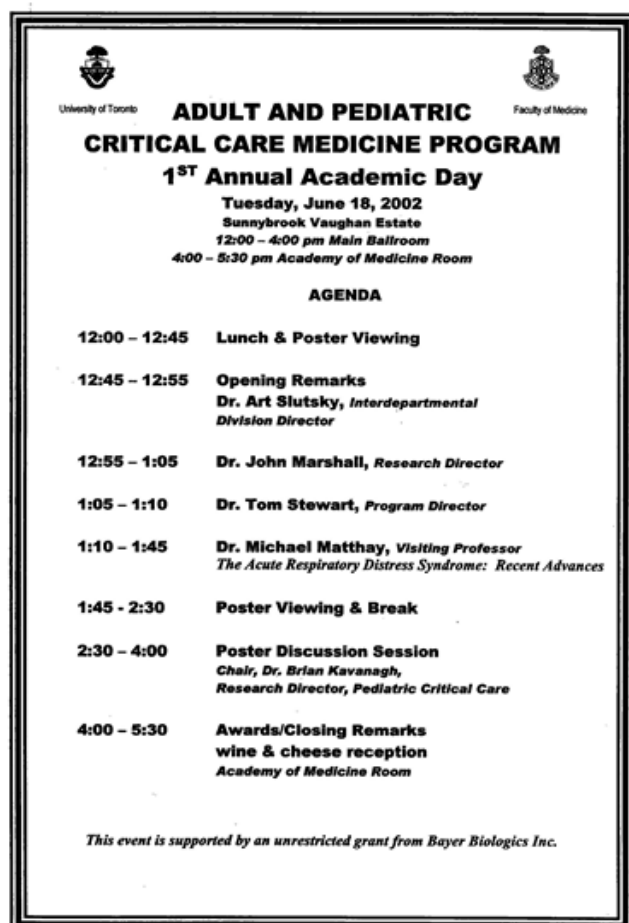


Fig 1: Program for the 1st Annual Academic Day

Distinguished Speakers

This year we were joined at Art Slutsky Day by three speakers from the Faculty of Medicine, each affording us a different perspective on our successes, responsibilities, and opportunities as a Division:

Dr. Trevor Young, Dean of the Faculty of Medicine, gave a fantastic overview of the leading work that continues across the Faculty of Medicine and within IDCCM in clinical and basic science research, and postgraduate medical education. Ranking seventh in the World in Clinical, Pre-Clinical, and Health Sciences by the Times Higher Education Organization assessment, we have consistently attracted more research funding than our nearest Canadian “competitors” (McGill, Ottawa, UBC, and Montreal) combined. Our CCM Residency Program is 50% larger and our established Clinical Fellowship Program 100% larger than other programs in Canada. Not surprisingly UofT trains more than half of all new specialists and one third of new family physicians in Ontario.



Dean Trevor Young

Diversity and equity have been key priorities for our Division in Faculty Development. **Dr. Lisa Robinson**, Chief Diversity Officer, Faculty of Medicine, led an excellent discussion, (the longest Q&A of the day), with her lecture on enhancing diversity and inclusion.



“Diversity embodies inclusiveness, mutual respect, multiple perspectives, and serves as a vital catalyst for change. It is achieved by nurturing the climate and culture of the institution through professional development, education, policy, and practice. The objective is to create a climate that fosters belonging, respect, and value for all and encourage engagement and connection throughout the institution and community.”

Accommodating competency-based evaluation and a competency-based teaching curriculum will place an increasing importance on simulation training resources and expertise. **Dr. Doug Campbell**, Director of the NICU at St. Michael's Hospital, has been recently appointed Lead Clinician for Simulation-based Education and Research, in the Faculty of Medicine. He is currently undertaking an inventory of University and hospital-based resources and will include coordination of expertise to help Programs facilitate their curriculum changes. We were delighted to host Dr. Campbell at Slutsky Day, to introduce his work and to nurture future cross-divisional collaboration.

Abstract Section

That first academic day in 2002 received 23 abstract submissions from 17 trainees, with Dr. Chris Parshuram being awarded Best Abstract for his submission, “Measured infusion concentrations in critically ill children”.

This year 45 abstracts were submitted by 39 clinical and research trainees across the Division. The following section winners were selected by Abstract Committee Chair, Dr. Alex Floh, together with committee members, Drs. Gerard Curley and Kevin Shore.

Best Abstract (Clinical Practice) – **Luciana Vieira**

Best Abstract (Basic & Translational Science) – **Mariana Geralde**

Best Abstract (Quality Improvement) – **Mazin Tuma**

Best Abstract (Physiology) – **Takeshi Yoshida**



Poster Discussion

Section winners were considered for the *Art Slutsky Prize for Best Abstract*. The Committee unanimously awarded the Prize to **Dr. Luciana Vieira** for her project titled, “*Early Neuromuscular Electrical Stimulation Preserves Skeletal Muscle Size and Echogenicity in Mechanically Ventilated Trauma Patients*” (Senior Supervisor: Gerson Cipriano Jr, University of Brasilia). Her work was also presented at the ATS in May and has since been published: *Am J Respir Crit Care Med* **193**; 2016: A4518.



L-R: Drs. Yoshida, Geralde, Vieira, Tuma

Divisional Awards

Slutsky Day continues to be a wonderful opportunity to recognize the outstanding contributions of Faculty members. This year Dr. Brochard bestowed a much-deserved honour on **Dr. Neill Adhikari**. He was awarded the *Humanitarian Award* for continued and outstanding contribution to improving the welfare of others through patient care and scholarly activity.

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 for education at Toronto Western Hospital, and for progressing the city-wide delivery and development of the Ultrasound Education Program.

The Education Program Committee awarded the *Simon Abrahamson Award*, for outstanding academic performance in Critical Care Medicine, to **Dr. Kevin Shore** for his leadership at the Divisional and University level, as well as for his commitment as Chief Resident and performance throughout his clinical training. Dr. Shore placed second amongst the Canadian candidates sitting the SCCM MCCAP examination this year.



The following *Awards for Individual Teaching Excellence* were also made by the trainees:

Toronto Western Hospital – **Alberto Goffi**

Toronto General Hospital – **John Granton**

Mount Sinai Hospital – **Christie Lee**

St. Michael's Hospital – **David Hall**

Sunnybrook Health Sciences Centre – **Lorraine Tremblay**

The Hospital for Sick Children – **Corrine Balit**

Community Hospital (North York General Hospital) – **Phil Shin**

Please join me in again congratulating the aforementioned individuals, and thanking them for their continued extraordinary commitment to the Education of our students, residents, and fellows.

We also would like to recognize our graduating class of residents:

Dr. Edmond Hung Leong Chau

Dr. Michael Joon Kim

Dr. Andrew Gordon Kuhl

Dr. Jonathan Marhong

Dr. Marcello Frederico Santos Schmidt

Dr. Kevin Daniel Shore

Dr. Michael James Tylee

We wish them a very successful career and we look forward to seeing them remain close friends and colleagues as members of our alumni.

Finally, thank you to all those who contributed so much hard work to making this event a great success again this year.

Dr. Andrew Steel

Program Director
Adult Critical Care Medicine Residency and Clinical Fellowships



1st row (L-R): Drs. Chau, Shore, Morgan
2nd row (L-R): Drs. Steel, Schmidt, Marhong, Tylee, Ms. Nardella
3rd row (L-R): Drs. Kuhl, Kim, Brochard



L-R: Drs. Slutsky and Viera



L-R: Drs. Shore, Brochard and Granton



Residents and Fellows



Transcriptomics Paper available online

Congratulations!

Drs. Christopher J Walsh, Jane Batt, Margaret Herridge, Sunita Mathur, Gary Bade, Pingzhao Hu, and Claudia dos Santos!

Visit Nature Scientific Reports - www.nature.com/articles/srep29334



Abstract

ICU acquired weakness (ICUAW) is a common complication of critical illness characterized by structural and functional impairment of skeletal muscle. The resulting physical impairment may persist for years after ICU discharge, with few patients regaining functional independence. Elucidating molecular mechanisms underscoring sustained ICUAW is crucial to understanding outcomes linked to different morbidity trajectories as well as for the development of novel therapies. Quadriceps muscle biopsies and functional measures of muscle strength and mass were obtained at 7 days and 6 months post-ICU discharge from a cohort of ICUAW patients. Unsupervised co-expression network analysis of transcriptomic profiles identified discrete modules of co-expressed genes associated with the degree of muscle weakness and atrophy in early and sustained ICUAW. Modules were enriched for genes involved in skeletal muscle regeneration and extracellular matrix deposition. Collagen deposition in persistent ICUAW was confirmed by histochemical stain. Modules were further validated in an independent cohort of critically ill patients with sepsis-induced multi-organ failure and a porcine model of ICUAW, demonstrating disease-associated conservation across species and peripheral muscle type. Our findings provide a pathomolecular basis for sustained ICUAW, implicating aberrant expression of distinct skeletal muscle structural and regenerative genes in early and persistent ICUAW.

Editorial Paper available

Congratulations!

The Challenging Task of Improving the Recovery of ICU Survivors

Shannon L. Goddard, MD; Neill K. J. Adhikari, MDCM, MSc

Survivors of critical illness encounter a variety of challenges, even after the acute illness has resolved. Observational studies have documented physical, cognitive,¹ and mental² impairments affecting survivors after a stay in the intensive care unit (ICU). As these data have accumulated, clinicians have sought to better understand what is now called "post-ICU syndrome"³ and to develop interventions both during and after the ICU stay to attenuate the effects.

In this issue of JAMA, Morris and colleagues⁴ report a randomized clinical trial of early ICU-based mobility involving 300 patients with acute hypoxemic respiratory failure from 1 US center. Patients in the intervention group (n = 150, including 84 who completed 6-month follow-up) received an intensive daily regimen of range of motion, strength training, and functional mobility training, whereas patients in the control group (n = 150, including 81 who completed 6-month follow-up) received physical therapy during weekdays, when ordered by the clinical team. The investigators demonstrated significant separation of treatment between the intervention and control groups, with faster initiation (median, 3 days vs 7 days) and more days of physical therapy

groups. The investigators included 32 secondary outcomes at 2 different time points. There was no difference in most secondary outcomes except for 6-month assessments of physical function, physical disability, and impairment of activities of daily living that favored the intervention group. Given multiple statistical tests, the authors correctly label these findings as exploratory.

The field of ICU rehabilitation and care after ICU discharge is at a crossroads. These 2 rigorous trials add to research that largely demonstrates no effect of interventions to improve longer-term outcomes of ICU survivors. Although studies aiming to improve recovery after ICU discharge are often considered together because of this common aim, it is important to consider substantial heterogeneity of study methods when interpreting results and considering future trials.

First, interventions to ameliorate post-ICU syndrome have been implemented in the ICU,⁵ in the hospital ward,⁷ and in the outpatient clinic or home⁸ and have differed in duration and intensity. These interventions have involved strategies for physical rehabilitation, activities of daily living, and case management. However, patient populations have been similar and broad. Attempts to identify a subgroup both at risk for poor

Drs. Shannon Goddard and Neill Adhikari

Visit JAMA -

<http://jama.jamanetwork.com/article.aspx?articleid=2530511>



Planning for and Providing Quality End of Life Care: the Post Approval Amendments and their implications for Critical Care

In September 2015, the College of Physicians and Surgeons of Ontario released its guiding policy document, "Planning for and Providing Quality End-of-Life Care"¹. The CPSO policy clearly acknowledged that the medical standard of care requires that CPR not be offered in some situations including but not limited to where

- CPR will almost certainly not resuscitate the patient,
- The patient's quality of life will be extremely poor should they survive, or
- There are no further treatment options for the patient's underlying illness"².

The policy stated that physicians cannot make a decision unilaterally not to perform CPR and that if the physician is of the opinion that CPR should not be offered this must be discussed with the patient or his substitute decision-maker (SDM). In the event of a disagreement, a No CPR order cannot be written without consent even if resuscitation would fall outside this CPSO defined medical standard of care.

In post approval amendments in June 2016³, The CPSO clarified that there is "a narrow set of circumstances in which CPR need not be provided: instances where the "patient's condition would prevent the physiologic goals of CPR from being achieved" and that in these circumstances a no CPR order can be issued without consent while conflict resolution is underway. These situations are very narrowly defined in that they include situations where providing oxygenated blood flow to the heart and brain would not be achieved even if resuscitation is attempted.

The implications of these amendments are quite important and should not be brushed aside simply because they may appear, at first glance, to be too narrow in scope. The amendments protect the sickest patients we treat from being exposed to perversely aggressive attempts at cardiopulmonary resuscitation

when treatments are either badly failing or have totally failed. The consequences for medicine are in effect quite profound in that medicine will not be used solely to inflict harm, and its purposes -- to cure, stabilize and alleviate--- remain intact in such situations, where the harms to patients would really have been truly appalling and even inexcusable. The amendments will also serve to prevent distress among critical care team members who would otherwise have been forced to attempt resuscitation (in conflict situations with SDMs) when success would be completely impossible and death imminent and inevitable. Conflicts over requests to provide treatments that offer little or no medical benefit are one of the greatest causes of critical care staff burnout and failed staff retention. In view of the fact that these situations would have represented the worse-case scenarios in which the team would otherwise have had to perform CPR in the event of a conflict, the

amendments will help the critical care field in ways that may not have been obvious when first reading them.

In the words of the CPSO, the amendments⁴ "provide an important clarification of the policy position, while maintaining

important policy content to ensure that no-CPR orders cannot be unilaterally written by physicians and that physicians engage in conflict resolution when there is disagreement regarding a no-CPR order". The amendments also change the conflict resolution process in that instead of referring physicians to the Consent and Capacity Board (CCB), physicians are to "seek legal advice regarding mediation, adjudication or arbitration processes that are available"⁵ when appropriate. However the policy provides no guidance on which process would be best used nor does it consider whether such processes are responsive to patient, SDM and physicians' needs in such circumstances.

"provide an important clarification of the policy position, while maintaining important policy content to ensure that no-CPR orders cannot be unilaterally written by physicians and that physicians engage in conflict resolution when there is disagreement regarding a no-CPR order"



The CPSO's policy does facilitate the promotion of quality end of life care in that it creates clearer standards of communication regarding consent to life-sustaining treatments including cardiopulmonary resuscitation and frames life-sustaining treatments as trials of treatments. As such the policy creates a clearer framework in which reasonable treatment goals can and should be discussed early in the course of a serious illness in ways that reflect the patient's medical context as well as her values. The policy therefore facilitates decision-making whether such resuscitative treatments should be offered in the first place and can be used to promote a culture shift wherein such treatments are placed in their proper context: will they be able to help a patient more than they will hurt? However the policy will still in all likelihood, despite the important amendments, result in more patients at the end of life receiving CPR in conflict situations when resuscitation will either not change the patient's ultimate outcome or will, in the words of the CPSO, give them "an extremely poor quality of life should they survive". This calls upon all of us to improve our skills in explaining such treatments, their potential role in a patient's treatment plan and in supporting patients and families as they confront the limits of medicine to not solely keep them "alive" but to give them a life they would want to live.

Though policies are not binding, they do inform administrative bodies like the CCB and the courts. While it may be frustrating if conflicts do arise despite best efforts at their prevention, it is not unreasonable for patients or their SDM to have some way to be reassured that physicians' claims such treatments fall outside the medical standard of care are true. There is significant uncertainty in medicine that is perhaps not always as acknowledged as it should be. Yet using consent to give patients and SDMs a voice if the medical standard of care is questioned is not the

best way to resolve such conflicts as it will result in medicine serving to only inflict harm. Second opinions are one mechanism that may help however if people lack trust, second opinions, especially if internal or arranged by the attending physician may, understandably, not be sufficient. Mediation, arbitration have not been systematically used in such situations and experience with these methods is rare to non-existent. Adjudication, as it is currently structured, may lack the degree of knowledge required for it to be fair and equitable and takes time—often when time is limited, the patient is deteriorating and may be undergoing increasingly invasive treatments in attempts to stabilize their illness while the conflict resolution attempts are underway. Such recourse to the legal system is therefore not that functional in reality. The question now for all of us is can we collaborate with the CPSO and /or legal structures to devise a conflict resolution process/ system that is informed, timely, just in its nature and one that recognizes the very real importance of the medical standard of care in protecting patients?

College of Physicians and Surgeons of Ontario, Planning for and Providing Quality End of Life Care Policy Statement #4-15 September 2015

² Ibid supra at p. 7

³ College of Physicians and Surgeons of Ontario, CPSO Council Update June 2016 Post Approval Amendments to Planning for and Providing Quality End of Life Care Policy Statement #4-15 September 2015

⁴ Ibid supra

⁵ Ibid supra p. 10

Dr. Laura Hawryluck



Congratulations to the new PhD's!

SDM preferences and experiences in ICU decision-making: Are we finding the right fit?

When ICU patients are incapable, substitute decision-makers (SDMs) generally assume decision-making responsibility for myriad decisions ranging from procedural consent to withdrawal of life support. We recently completed a multi-centre study involving 180 SDMs of critically ill patients focusing on decision-making preferences, experiences, and outcomes. Few (32%) had prior experience as the patient's SDM and prior discussions about ICU treatment preferences were reported by 43%. Using an adaptation of the Control Preferences Scale¹, SDMs reported variable preferences and experiences related to ICU decision-making with 44% reporting a preference for a shared role in decision-making while 31% and 24% preferred a passive or active role respectively. Importantly, almost half (49%) reported discordance, or incongruence, between their preferred and actual role with few (31%) recalling any discussion about their decision-making role preferences with the clinical team. The experience of incongruence was associated with the presence of psychological distress, a composite outcome of any symptoms of anxiety, depression, or post-traumatic stress, confirming a relationship previously identified in a cohort of bereaved family members in the United States². These results suggest greater discussion of decision-making roles, and promotion of shared decision-making processes, may mitigate psychological distress symptoms in SDMs of the critically ill.

1. Degner LF, Sloan JA, Venkatesh P. The control preferences scale. *Can J Nurs Res* 1997;29:21-43.

2. Gries CJ, Engleberg RA, Kross EK, et al. Predictors of symptoms of posttraumatic stress and depression in family members after patient death in the ICU. *CHEST* 2010;137:280-7.

Orla Smith, RN, PhD

Diaphragm Activity and Function during Mechanical Ventilation

Previous studies suggest that mechanical ventilation (MV) can injure the diaphragm, potentially prolonging ventilator dependence. However, there are many potential insults to diaphragm function during critical illness and the extent to which diaphragm dysfunction is attributable to ventilation was undefined in the clinical setting. We hypothesized that diaphragm inactivity and/or injurious diaphragm loading during MV mediate diaphragm injury in the clinical setting. To test this hypothesis, we first evaluated the feasibility, validity and reproducibility of novel methods for monitoring the diaphragm in the clinical setting. We found that neuromuscular coupling (NMC), a measure of diaphragm function, is influenced by inspiratory effort, airway flow and diaphragm motion during inspiration and that NMC varies considerably over time in healthy volunteers. We also found that right hemidiaphragm thickness can be measured reproducibly by ultrasound and that increasing diaphragm thickness during inspiration reflects active contractile activity rather than passive chest wall expansion. Subsequently, in a large prospective cohort study (n=107) we demonstrated that diaphragm thickness varies considerably over time in relation to the level of inspiratory effort. Changes in muscle thickness were associated with impaired muscle function. Finally, in a preliminary

clinical study (n=10) we confirmed the feasibility of selectively enrolling patients at high risk of prolonged MV and of measuring diaphragm activity and patient-ventilator dyssynchrony on an hourly basis commencing shortly after intubation. Reversed triggering dyssynchrony and eccentric diaphragm contractions were observed frequently in certain recording epochs in 3 patients. We conclude that ultrasound is a useful clinical tool to monitor the diaphragm during MV; NMC measurement requires further standardization and validation. MV likely causes significant diaphragm injury in patients and titrating ventilatory support to maintain normal levels of inspiratory effort may protect the diaphragm from injury during MV. A detailed description of patient exposure to diaphragm inactivity and injurious loading during MV is feasible; such observations could inform the design of muscle-protective ventilation strategies.

Dr. Ewan Goligher



UHN Continuity of Care Rounds: Innovative Interdisciplinary Approach to Patient Care

The increasing complexity of critical illness, prolonged mechanical ventilation, new life sustaining technologies, limitations of rotational work, a large complex team, and evolving societal expectations have spurred new challenges for the delivery of quality critical care services for vulnerable patients. It is essential that attention be paid to transparent collaborative and coordinated activity of the Interprofessional Practice team (IPP) across the trajectory of the critical illness experience in order to maximize positive outcomes for patients, their families and the professional team.

In order to address these challenges our team implemented Continuity of Care Rounds (CCR). These rounds are an adjunct to daily bedside rounds and focus on the needs of Medical-Surgical patients admitted into the MSICU whose length of stay has reached 30 days &/or longer.

The main purposes of CCR are: 1] to provide a space for the IPP team to explore patient and family centered needs, 2] to support consistency of care planning, 3] to explore opportunities to optimize the collective expertise of the team 4] to provide consistent team communication week to week.

CCR are held early each week and involve 30 minutes of discussions attending to the primary concerns and challenges for each patient that week. CCR is led jointly by a Staff Physician and Patient Care Coordinator (RN). Participants include attending staff MD, house staff, nurses, and allied health. The team evaluates, revises and extends the patient care plan and customizes interventions to support meaningful patient, family and team outcomes. Facilitated discussion addresses and integrates patient values, goals and priorities into the plan and both short and long term objectives are reviewed, followed-up and evaluated weekly. Table 1 illustrates CCR activity from 2013 to present. CCR rounds have become a valuable tool for team communication and are a platform for achieving individualized and dynamic patient-focused care.

Table 1:

Note patients with LOS>30 days occupy approximately 30% of critical care bed days.
N=46

Ingrid Daley RN, MScN, CNCC (C) & Dr. Neil Lazar

TGH MSICU	FY 13-14	FY 14-15	FY 15-16
Total Patients	995	993	1068
Total Pts Days	8161	8158	8178
ICU Mortality	18.0%	17.3%	17.6%

# Patients LOS > 30 Days	45(4.52%)	44 (4.43%)	47 (4.40%)
Total Pts Days	2873 (35.2%)	2247 (27.5%)	2509 (30.7%)
ICU Mortality	31.1%	27.3%	34.0%

SMH WIReLeSS Rounds Weekly Interdisciplinary Rounds for LongErStay patientS

Weekly Interprofessional Rounds for Longer Stay PatientS (WIReLESS) is an initiative in the Medical-Surgical Intensive Care Unit (MSICU) inspired by Critical Care Services Ontario's Prolonged Ventilation Toolkit and Critical Care Canada Forum's Symposium on Developing Effective Hospital-Based Weaning Programs. These rounds were implemented to promote evidence-based clinical practice and care consistency for patients experiencing chronic critical illness. WIReLESS occurs weekly in addition to daily rounds and involves the patient and their family, the staff physician, clinical nurse specialist, bedside nurse, social workers, physiotherapists, respiratory therapists, and the ethicist. Patients are eligible for WIReLESS if they have been in the MSICU for ≥ 14 days and are medically stable. Discussions during WIReLESS focus on following the Society of Critical Care Medicine's "ABCDEF" bundle (Assess, prevent and manage pain; Both spontaneous Awakening Trials (SATs) and Spontaneous Breathing Trials (SBTs); Choice of analgesia and sedation; Delirium - assess, prevent, and manage; Early mobility and exercise; Family engagement and empowerment) and arranging for safe transitions in care. Since its launch in November 2016, approximately 30% of patients in the unit engage in WIReLESS rounds on any given week, and the team has followed 63 patients over the course of their MSICU stay.

Melissa Guiyab, RN and Dr. Jan Friedrich



A collaborative approach to the introduction of ECCO₂R in the ICU



L-R: Dr. Chen, Ms. Smith RN, PhD
Drs. Edke, Brochard
Mr. Shklar, Ms. Martins

To support our participation in the ESICM-sponsored SUPERNOVA¹ study evaluating the role of ECCO₂R (Hemolung® RAS) in facilitating the delivery of extra-low tidal volume ventilation (~4 mls/kg) in patients in ARDS, an interprofessional team of nurses (RNs), respiratory therapists (RTs), and physicians (MDs) at St. Michael's established a curriculum development committee and developed a competency-based training program for front-line clinicians. In an interactive 4-hour workshop, clinicians receive didactic, case-based, and hands on training related to: circuit priming and management, anticoagulation, catheter insertion, ECCO₂R-ventilator interactions, ECCO₂R weaning, and decannulation. To date, approximately 80 clinicians have completed our training program. Evaluations of the program have been overwhelmingly positive. In the evaluations (n=41 completed), 100% of respondents reported that they were excited to participate in the workshop to learn about SUPERNOVA and the Hemolung® RAS, that the content and format of the workshop supported interprofessional collaboration, and that they experienced a substantial increase in knowledge by attending the workshop. One participant stated, "The content was interesting and I am excited to be exploring this new avenue for patients". Another attendee remarked, "I quite enjoyed the multidisciplinary learning and interaction that occurred today". To date, we have enrolled one patient in the SUPERNOVA study and real-time feedback about suggests that our training approach supports clinician comfort and confidence with using the Hemolung® RAS.

<https://clinicaltrials.gov/ct2/show/NCT02282657>

Orla Smith, RN, PhD

A.C.U.TE Acute Care Ultrasound TEaching

As part of a collaborative effort between the Critical Care and Anesthesia Departments at UHN, the first edition of A.C.U.TE (Acute Care Ultrasound TEaching) was launched during the 2015-2016 academic year.

This curriculum was designed to provide point-of-care ultrasound training to fellows across all sites of the Critical Care Division, as well as to UHN Anesthesiologists and Intensivists. The training involved theoretical and practical components, including supervised scanning sessions organized by Drs. Douflé, Goffi, and Meineri in collaboration with sonographers from UHN. Although the curriculum mainly focused on echocardiography, we also covered lung, abdominal and vascular ultrasound. Overall, 10 fellows and 4 attendings participated last year.

As we are about to begin the second edition, we are fortunate to have some of the fellows trained last year joining us as supervisors. The involvement of previously-trained fellows should allow us to offer this opportunity to a larger number of participants, as well as to create and invigorate more "echosiastic" intensivists.

Drs. Alberto Goffi and Ghislaine Douflé



The 8th World Congress for the World Federation of Pediatric Intensive and Critical Care Societies was held in Toronto June 4th to 8th. WFPICCS was established in September 1997 by leaders in the field of pediatric critical care, led by Dr. Geoffrey Barker who was Chief of the Department of Critical Care Medicine at SickKids at the time. Geoff and others envisioned that by combining international expertise and experience, the care of critically ill children all over the world would be improved. Given the leadership from SickKids in establishing the World Federation, we were particularly proud of being able to have a pivotal role in organizing this 8th international conference. Drs. Peter Cox and Peter Laussen were co-chairs, along with nursing colleagues Fenella Gill (Australia) and Lauren Sorce (USA). There were over 1500 attendees from 81 countries; additional information can also be found at www.picc2016.com.

SickKids clinicians featured prominently across the breadth of the congress as shown below and we were particularly pleased that this was an interdisciplinary collaboration that really allowed us to show the great care provided at SickKids for critically ill newborns, infants and children.

The conference began with two days of workshops, ranging from skills based programs in ECMO, mechanical ventilation and the use of ultrasound in critical care, through to workshops on risk management, outcomes and resuscitation. A number of important regional meetings were also held, bringing together clinicians from different areas of the world including Spanish/Portuguese, French-speaking, Canadian and Asian workshops.

The opening ceremony was a highlight and Dr. Laurent Brochard welcomed attendees on behalf of the IDCCM. Plenary sessions were held each morning on a broad range of topics

related to global health, education and research; of particular interest were recent updates in pediatric resuscitation and respiratory physiology in children at altitude (Everest Base Camp). One of our keynote speakers was Dr. Jerry Brown, Time magazine person of the year in 2015 who spoke about the challenges caring for patients and communities during the Ebola epidemic. A closing plenary session was also very successful, focusing on disaster preparedness with a key note speaker being Dr. Sabine Roche from Paris. Dr. Roche spoke on the coordinated efforts across medical communities in Paris following the horrific terrorist attack in November of last year. Dr. Roche was also sponsored by the IDCCM and was able to meet faculty and give presentations at the adult critical care units in Toronto. We particularly appreciated the willingness of our adult colleagues to support our congress as well as Dr. Roche.

Sunrise sessions focused on “How To...” questions, providing an interactive forum for panels to discuss specific aspects of care and to share ideas across other centers. The main sessions of the congress incorporated six parallel sessions with a total of 37 scientific sessions presented over three days. These sessions were focused on critical appraisal of current strategies for management across a wide range of conditions seen in pediatric critical care.

There are many people within the department who contributed to the success of this congress and we particularly want to thank Melanie Hamilton and Kathy Boyko for their expertise and support in helping us organize the congress. The next World Congress is to be held in Singapore in 2018 and the Department of Critical Care Medicine at SickKids looks forward to contributing.

Dr. Peter Laussen

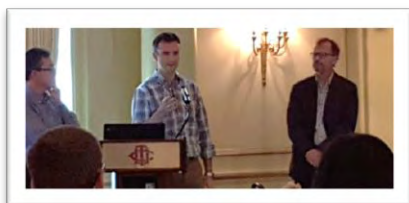


L-R: Drs. Gill, Cox, Sorce, Laussen
PICC Co-Chairs



The IDCCM recently ran its first course on mechanical ventilation, directed by Drs. Laurent Brochard, Niall Ferguson and Ewan Goligher. The course, entitled “Mechanical Ventilation: From Physiology to Clinical Practice” ran over 3 days and featured the wide-ranging world class expertise in all aspects of mechanical ventilation among the members of our Division. Over 80 attendees participated; approximately 50% were intensivists and fellows in intensive care medicine while a very enthusiastic group of respiratory therapists comprised the remainder. Course content covered the full range of physiological and clinical issues in mechanical ventilation. The course also featured a number of simulations and work-shops: attendees had the opportunity to get hands-on experience with advanced respiratory monitoring techniques including esophageal manometry, diaphragm electrical activity, electrical impedance tomography, lung volume assessment and ultrasound and clinical detection of patient-ventilator dyssynchrony. The course was extremely well-received and highly rated in feedback from participants. We anticipate significant demand for the next course iteration in 2017. See also <http://www.ncbi.nlm.nih.gov/pubmed/27203509>, THE LANCET 2016.

Dr. Ewan Goligher



L-R: Drs. Laffey, Goligher, Brochard



Dr. Ferguson



My year in Chicago....

In the last year alone, there were 3000 shootings and 500 homicides in Chicago. While I was aware of these sobering statistics when I embarked on a one-year fellowship in Trauma Surgery at Cook County Hospital, it wasn't long before I began to appreciate the true impact of these violent acts on patients, their families, the community, and the front-line providers of their care.

Of course, the rate of penetrating traumatic injuries is the reason I sought training in Chicago in the first place. I hoped to gain experience and expertise that would underpin the surgical aspect of my career when I returned to Toronto. What I ultimately gained was far more than technical skills. The exposure to the violence and social inequalities faced by my patients

was eye-opening, and a far greater challenge to cope with than the busy workload of a surgical fellowship. While I have always had an interest in family and interprofessional communication, my experience in Chicago further stimulated this interest. In particular, I realized that as intensivists, we need to think more about how we can better meet the needs of patients and families affected by violence, who might be the individuals we typically don't include in our studies of family communication and post-ICU care: the young, and the economically disadvantaged. My experience also made me reflect on the role that race plays in the doctor-patient relationship, and how historical and present day injustices might undermine the critical trust needed between an intensivist, patient, and their family.

Ultimately, my year in Chicago is one I'll never forget, and I'm thrilled to be home again.

Dr. Barbara Haas



Employment Opportunities

The Interdepartmental Division of Critical Care Medicine (Departments of Medicine, Anesthesia, Surgery, Paediatrics), Faculty of Medicine at the University of Toronto, and the Critical Care Program at University Health Network and Mount Sinai Hospital (UHN/MSH) are seeking applications for the following:

1. Academic Intensivist; Clinician Investigator or Clinician in Quality and Innovation. The successful candidate must be eligible for a full-time clinical academic appointment at the rank of Assistant or Associate Professor at the University of Toronto. Effective start date of appointment is **January 1, 2017**, or shortly thereafter.

2. Academic Intensivist Clinician Scientist. The successful candidate must be eligible for a full-time clinical academic appointment at the rank of Assistant or Associate Professor at the University of Toronto. Effective start date of appointment is **January 1, 2017**, or shortly thereafter.

The successful applicants must hold MD and FRCPC qualifications or equivalent with training in Critical Care Medicine and have, or be eligible for licensure in Ontario. Strong academic credentials are essential and the successful candidate must be eligible for an appointment as a Clinician-Investigator or Clinician in Quality and Innovation as evidenced by formal training and scholarly activity. The successful candidate must also have strong interpersonal and communication skills and thrive within a collaborative and interdisciplinary program involving multiple specialties (medicine, surgery, radiology, etc.).

The successful candidates will lead the inter-professional critical care team during clinical weeks on call in the role of attending physician at MSH. In addition, s/he will develop an academic profile and body of work either in the field of clinical research or quality improvement. The Mount Sinai Hospital Medical-Surgical ICU is well known locally and internationally for its expertise in caring for patients with severe respiratory failure, critically ill patients with cancer, and for obstetrical critical care. The unit also provides post-operative care for many general and orthopaedic surgery patients.

Academic rank, salary and contractual arrangements will be commensurate with the qualifications and experience of the successful candidate. Minimum remuneration will be \$197,000 per year. For the successful candidate remuneration will be negotiated and will be highly competitive with the usual income range for an academic Intensivist in the Province of Ontario.

Interested individuals should send a copy of their Curriculum Vitae and a letter of interest to Dr. Niall Ferguson, Head of Critical Care, University Health Network and Mount Sinai Hospital at the address below. Applications will be accepted until **August 19, 2016**, or until the position is filled.

Niall D. Ferguson, MD, FRCPC, MSc
585 University Avenue, Munk Building, 11-PMB-120, Toronto, ON, M5G 2N2
Tel: +1 416 340 3096
Email: niall.ferguson@uhn.ca

For more information about the Department of Medicine please visit our website at <http://www.deptmedicine.utoronto.ca/Page11.aspx>

The University of Toronto is strongly committed to diversity within its community and especially welcomes applications from racialized persons / persons of colour, women, Indigenous / Aboriginal People of North America, persons with disabilities, LGBTQ persons, and others who may contribute to the further diversification of ideas.

All qualified candidates are encouraged to apply; however, Canadians and permanent residents will be given priority.



SUMMER 2016



Interdepartmental
Division of Critical
Care Medicine

IDCCM Fall Mini-Retreat

Theme: Education

Thursday,
September 8, 2016
1:00 – 8:00 p.m.

**All Faculty and Fellows
are invited**

RSVP on or before August 8th
Dr. Brochard (BrochardL@smh.ca)
Louisa Matela (MatelaL@smh.ca)

Location: The Vivian and David Campbell Conference Facility,
Munk School of Global Affairs, Trinity Site,
1 Devonshire Place

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