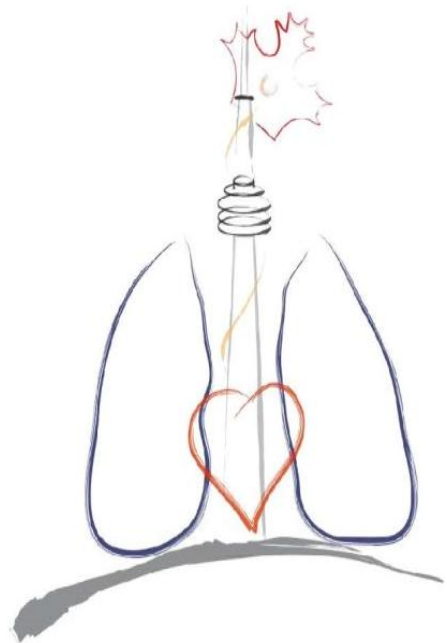




UNIVERSITY OF
TORONTO

Interdepartmental
Division of Critical
Care Medicine



STRATEGIC PLAN

2015-2020

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INTRODUCTION

The most precious resource of the Interdepartmental Division of Critical Care Medicine (IDCCM) at the University of Toronto is its people. A rich cadre of 90+ faculty members, many of whom are internationally renowned researchers and educators, serve the Greater Toronto Area with a population of more than 6 million people. More than 300 publications are achieved in high impact peer-reviewed journals each year and there are 60+ critical care medicine trainees enrolled in our programs at any given time. We achieve great heights but we can always do better, especially in facilitating the proactive integration of adult and paediatric critical care, promoting the Division as the academic centre for the Greater Toronto Area and fully engaging the unique multi-professional aspect of our Division. We also want to reach highly ambitious goals in terms of research and be *the* place to go to learn critical care medicine.

It is my pleasure to share with you our new strategic plan and our predictions for an exciting future. Goals developed through this process build on our collective strengths and enrich current programs in research and education. They also direct worthy investment in the area of clinical practice and quality improvement that will benefit the local and national communities we serve. New global opportunities are being embraced through our international outreach goals, securing and promoting our established position as the world-wide leader in critical care medicine. Finally, recognizing our faculty members are our most precious resource, meaningful investments in mentorship, equity and equality will be paramount in the coming years.

A broad process of consultation was initiated to develop our strategic planning agenda and define key questions. Included were web-based surveys of the leadership and broader membership, focus group meetings with internal stakeholders and semi-structured interviews with identified leaders within the TAHSN community. The main body of work was done by five working groups - education, research, quality, faculty and international outreach - charged with a specific mandate to identify important trends; propose goals and actions for the next five years; outline outcomes and preliminary performance measures for these goals; and identify specific processes, mechanisms or structures required to achieve them. The leadership of each group was carefully considered to ensure sufficient expertise to function as thought leaders and resources to inform dialogue. All members of the Division were engaged in one or more of these groups.

The final plan was shaped through the collective efforts of faculty, trainees and key stakeholders, who then came together and participated in a meaningful dialogue in October 2014 to create our academic and professional goals. All working group reports received in this process have been detailed and extensive. Many of them have been abbreviated in this report to focus on important issues discussed at the planning retreat. The Faculty report has been also abbreviated but it brings to light important but previously “hidden” issues that the Division wishes to openly address. The result is an ambitious new plan built upon a cohesive foundation of local, national and international leadership, partnership and collaboration that position us well for the future.

There are many people to be thanked for their insight and support. A special thank you to all members of the Division's executive team and invited guests who, together, served as the planning team: Simon Abrahamson, Andrew Baker, Brian Cuthbertson, Niall Ferguson, Rob Fowler, John Granton, Margaret Herridge, Brian Kavanagh, Afrothite Kotsakis, John Laffey, Peter Laussen, John Marshall, Christopher Parshuram, Gordon Rubinfeld, Damon Scales, and Arthur Slutsky.

I am indebted to our working groups for their engagement and outstanding work under the leadership of: *Education*: Damon Scales (Chair); Afrothite Kotsakis; Shelly Dev; Dominique Piquette; Christie Lee; Andrew Steel; Alberto Goffi; and Simon Abrahamson. *Research*: Margaret Herridge (chair), John Marshall, John Laffey, Gordon Rubinfeld, Jamie Hutchison, Niall Ferguson, Brian Kavanagh, Warren Lee, Jane Batt, Jeff Man, Ewan Goliger, Hannah Wunsch, Neill Adhikari, Rob Fowler, Ger Curley. *Quality*: Andre Amaral (co-chair), Jeff Singh (co-chair), Louise Rose, Shannon Goddard, Taz Sinuff, Chris Hayes, Peter Laussen, Eddy Fan, Damon Scales, Stephen Lapinsky. *Faculty*: Claudia Dos Santos (co-chair); Brian Cuthbertson (co-chair); Karen Burns; Peter Cox; John Granton; Victoria McCredie; Elizabeth Wilcox; Natalie Wong. *International Outreach*: John Marshall (co-chair), Neill Adhikari (co-chair), Andrew Baker, Karen Burns, Claudia dos Santos, Robert Fowler, Alberto Goffi, Hannah Wunsch.

Our planning benefited significantly from a lot of wisdom gleaned from outside the Division and I would especially like to thank Gillian Hawker, Brian Kavanagh, Denis Daneman, Jim Rutka, Avery Nathans, Catharine Whiteside, Trevor Young, Robert Howard and Barry McLellan for their participation and contributions.

I would like also to express my appreciation to Helena Axler of *Axler & Associates*, who expertly guided the planning process, and to Allison Hardisty who work very hard, especially for our final report. I would like thank several administrative assistants in the Division who spent a large time at organizing some of our key activities, including Meredith Malloy and Bernadette Singerland. In particular, I would also like to take this opportunity to personally thank Maria Louisa Matela for her dedication and commitment to this process and her continuing support of the Division overall.

There remains much work to be done as we move forward with the implementation and achievement our planning goals and I will look to members of our new Executive and Steering committees to drive the next steps in this process. We took time to finalize this document but this time also helped us to start working with the faculty and partners who have demonstrated a shared commitment to realize these important goals. We are already on a good track and have initiated many of the processes described in the document.

Laurent Brochard
Director

VISION

To demonstrate international leadership in advancing the care of the sickest patients through innovation and excellence

MISSION

The Interdepartmental Division of Critical Care Medicine is a diverse group of educators, researchers and clinicians committed to improving lives and care of the critically ill by:

- Educating and mentoring the next generation of clinicians, teachers and scientists
- Fostering and conducting relevant, high impact research
- Leading in the delivery and assessment of the highest quality clinical care
- Generating novel technologies
- Translating knowledge and innovation into practice and policy

VALUES

- Excellence - in advancing science and education to provide the highest quality and safest care to critically ill patients
- Collaboration and Teamwork- within and across the division, across disciplines and health professions that transcend geographic sites and departments
- Collegiality and Respect - fostering constructive, supportive and inclusive relationships that enhance the spirit of cooperation and respect for diverse perspectives and beliefs across the division
- Innovation - in promoting critical inquiry and supporting implementable ideas which provide value and evidence to advance critical care
- Accountability - transparency and responsiveness in all of our activities to our stakeholders and diverse communities



STRATEGIC DIRECTION #1

GOVERNANCE STRUCTURE & INTEGRATION

Critical care medicine is a specialty that treats patients with life threatening illness and single or multiple organ system failure. Reflecting the skills required for the management of these adult and pediatric critically ill patients with widely divergent medical, surgical and ethical problems the specialty is multi-disciplinary in nature, combining the efforts of physicians from multiple specialties. Importantly, critical care medicine is also inter-professional providing a rich academic environment for collaborative research and education.

The organization of critical care medicine and its academic structure differs slightly in places around the world, tending to reflect the history of the institution and/or leadership of the founder(s). In some places it is led by surgeons, in some by anesthesiologists and in some medical intensivists. In many places, pediatric critical care is separated from adult practice. Toronto is unique in that it is a collaboration between all adult and pediatric critical care units from University affiliated Hospitals under the single umbrella of one University. The physicians working in critical care medicine come from Medicine, Anesthesia and Surgery; the inclusion of Pediatrics in critical care medicine in Toronto is important and also distinguishes our program.

"The Division has an outstanding reputation, delivers world-class clinical care, provides world-class education, and conducts world-class research. It is clearly one of the very top academic critical care programs in the world".

External Review, 2010

The Division of Critical Care Medicine was established as an Extra-Departmental Unit (EDU) of the Faculty of Medicine in 2000 under the leadership of the founding Director, Dr. Arthur Slutsky. The Division's operating budget is provided jointly by the Departments of Anaesthesia, Medicine, Paediatrics and Surgery. The Director has a direct reporting relationship to each of the Chairs of these four Departments. The Director participates in the recruitment of critical care medicine faculty but the administrative processes of academic appointment, promotion and faculty affairs have been supported through the respective Departments of the individuals.

Formalizing the Division in this way helped to facilitate academic interaction among the different specialties, proving multi-disciplinary education for residents and an inter-disciplinary research environment. Importantly, it also fostered a sense of identity for intensivists and supported the recruitment of academic intensivists. There is concern that the variable inclusion of the Director in the administrative processes of academic appointment, promotion and faculty affairs of CCM faculty in the past may have created real or perceived disparity across sites or members (discussed below). There are, also limitations with the EDU model, especially evident in an environment increasingly focused upon quality and improved models of patient care, and with competitions between sites.

Critical Care Medicine is now an Interdepartmental Division, and from the discussion during the strategic plan, emerged the need to formalize our administrative, promotion and recruitment processes as one of our priority. We have members in all acute care academic hospitals, and through all departments and we now believe that every recruitment or promotion should require a formal approval by the executive committee of the division in order to give to the Division Director the mandate to support candidates for

promotion with regards to the vision of our department, our mission and values and to negotiate with the hospital CEO and the Department Chair about recruitment. A clear description of this process appears as an important short-term objective of the IDCCM

Also, the former Dean Catharine Whiteside and the new Dean Trevor Young have strongly recommended the Division shift away from the pure EDU model and embrace the new concept of the *network alliance* to achieve sustainable funding and meaningfully integrate research and education with health care for improved patient outcomes. A working group on Governance has explored the opportunity. The conclusion was that this model was extremely attractive for the research organization of the IDCCM. Such a model needs several years to be developed.

Having met with the leaders of the Toronto Dementia Research Alliance and the Medical Psychiatry Alliance and digested their individual experiences, the Division explored the development of a *University of Toronto Alliance for the Critically Ill* (UTAC) to realize the importance of the management of the Critically Ill patient in modern medicine. The Alliance would build on current strengths and promote widely the international expertise that resides in the city. Faculty members already work together and there is strong collaboration across the city; rallying the teaching hospitals and other key stakeholders around such a vision for Critical Care Medicine that is compelling is important. The UTAC proposal was formally presented at the planning retreat and an invited panel comprising Dean Catharine Whiteside, Robert Howard, CEO, St. Michael's Hospital, Barry McLellan, CEO, Sunnybrook Health Sciences Centre, Avery Nathens representing the Chair of Surgery, Brian Kavanagh, Chair of Anesthesia. They provided sound advice to help move the proposal forward and make it a reality. The goals and objectives below reflect their wisdom and valuable input.

THE PROPOSAL: UNIVERSITY OF TORONTO ALLIANCE FOR THE CRITICALLY ILL

The ICUs are among the most costly Departments in the hospital, necessitating invasive and sophisticated equipment and monitoring but also a considerable amount of resources in terms of personnel. Large progress has been made in the management of critically ill patients thanks to translational, physiologically-based, experimental and clinical research over the past twenty years and -to a large extent- due to a better recognition, understanding and management of the complications associated with life supporting therapies used in the ICU.

ICU research faces limitations and future organization will need to overcome these limitations. Part of these limitations are represented by the two sides of the trajectory of the critically ill patients. What happens before the ICU and what happens after the ICU must be better incorporated in the research strategies concerning critically ill patients and a better integrated model must be implemented. Because of the crucial importance of the timing of the intervention, in some severe ICU syndromes, pre hospital care and emergency care sometimes have a prominent role in the outcome of the patient. In areas like sepsis, trauma, cardiac arrest, a better integration of the pre-hospital care with the intensive care management has already been shown to be of benefit for the long term outcome of these patients. Coordinated research programs between pre ICU management and the ICU have now become necessary to maximize the efficiency of the research programs focusing on critically ill patients. Similarly, the same integrated approach for the surgical patient is necessary to take into account pre and inter-operative management in the global management of the critically ill surgical patient and transversal research programs involving surgery, anesthesia and critical care might be developed to offer a continuum of research and care for the high risk surgical patient in order to reduce complications.

An important step in our understanding, coming from quality programs assessing the outcome of critical care medicine, has been to realize that the ICU stay is often followed by the existence of chronic disabilities and a subsequent high level of dependence to the health care system. As critical care medicine becomes more successful, a large number of patients will need ongoing care in the health system. The ICU is part of the

whole patient's trajectory and it is crucial to better understand the role of the ICU stay.

A critical illness is often not an unpredictable and sudden event but happens after a long and complex decline in health and functional status. Patients are then discharged alive from the ICU but experience sleep problems, muscle weakness and weight loss, cognitive disorders, physical limitations, impairment in quality of life, as well as sequelae from their initial disease such as ventilator dependence, neurological impairment, or renal failure. The implications in terms of public health are huge, and enormous efforts in prevention and rehabilitation are needed. The social impact is also large, with major difficulties for the young patients to go back to work. Specific research programs to prevent or treat these complications must be developed and might start during the ICU stay. Many of the ICU research programs already focus on preventing these complications, but might benefit from being performed with the professionals in charge of these complications after their stay. Similarly rehabilitation programs might start early in the ICUs with the help of the most qualified health care professionals.

An ambitious collaborative research program is needed to better understand the molecular mechanisms at play in situations of chronic critical illness, the individual susceptibility to these complications, and therapeutic strategies must be designed, tested and implemented before, during and after the ICU. We believe that investing in a coordinated approach to critical care medicine, across the patient's trajectory, will ultimately improve the patient's quality of care and life, as well as decreasing health care costs to the system.

We need to move to the next step of Critical Care Medicine, and need more research in this direction. For doing this, working together and with the support of research networks is necessary. Although specific research networks do exist in Critical Care, we have the unique opportunity in Toronto to create a collaborative Alliance Network integrating the adult and pediatric ICUs in Toronto (250 ICU beds and 18 000 patients per year), the basic and the translational research groups and to join with the other disciplines involved in the management of critically ill patients.

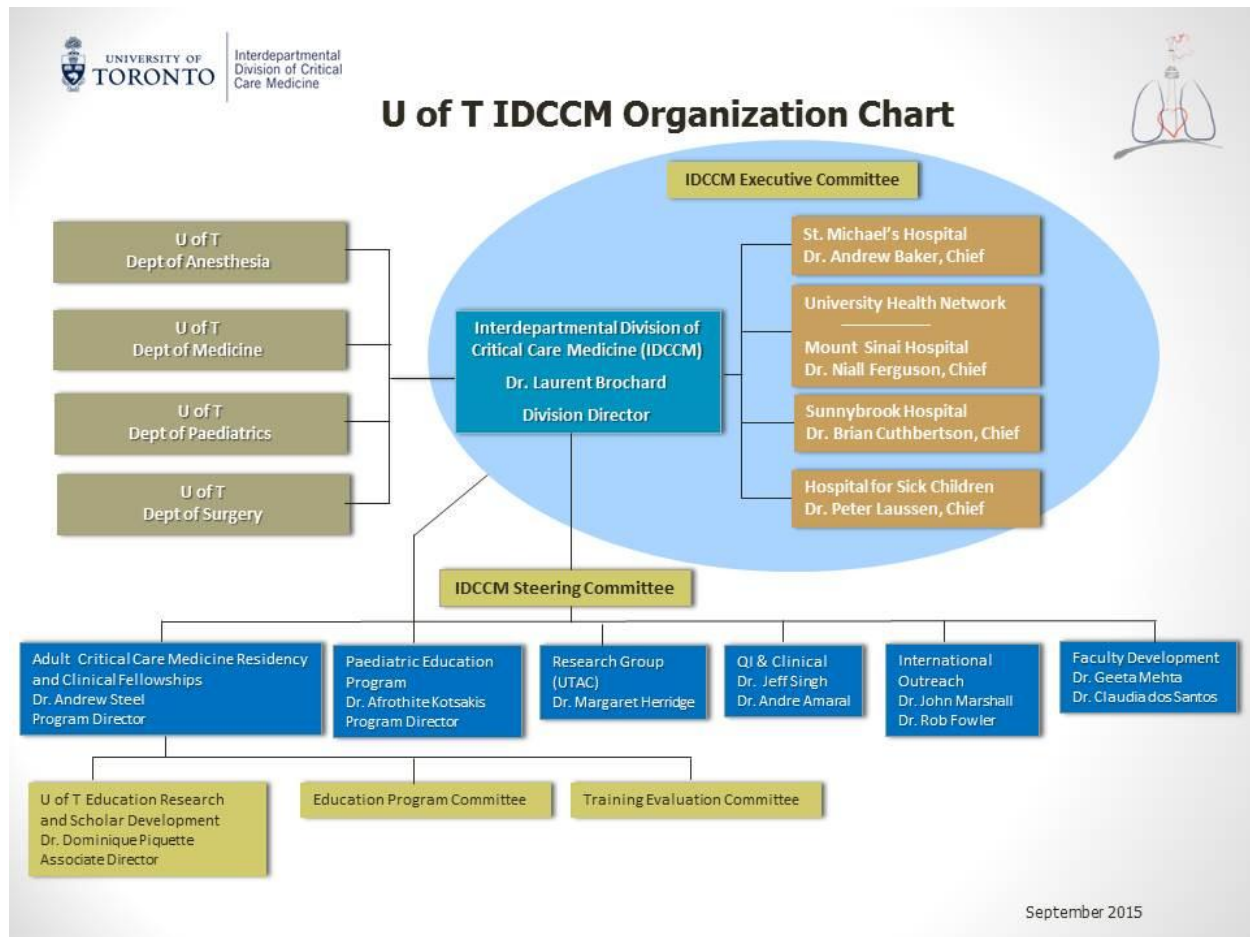
The members of the current IDCCM would represent the core group of this research Alliance. Other disciplines, specialties or subspecialties could be Emergency Medicine, Surgery, Anesthesiology, Respiriology and Physical Medicine & Rehabilitation. The University of Toronto, but also the academic hospitals must be major partners since this research program, including Quality Improvement and Education research, may result in enormous benefits in terms of quality of care delivery. This Alliance can be unique in its desire to track and improve the trajectory of patients from pre, during and post ICU care. Ultimately, this patient-centred model will provide "an ICU without walls".

Consultation with key stakeholders, potential partners and investors is an important next step. To support this dialogue a formal academic business plan will be developed with a fully developed vision, strategic goals and a clear articulation of expected financial and health impacts.

STRATEGIC DIRECTION #1 GOVERNANCE STRUCTURE AND INTEGRATION

GOALS	ACTIONS
1. RENEW THE IDCCM ORGANIZATIONAL STRUCTURE	1-1 Align organizational structure and strategic priorities to support recommended changes 1-2 Implement and promote joint recruitment practices 1-3 Create a Steering Committee and an Executive Committee
2. PROMOTE THE DIVISION, ITS WORLD CLASS RESEARCHERS AND RESEARCH PRODUCTIVITY	2-1 Improve our website 2-2 Engage appropriate expertise to develop professional communication, marketing and targeted fundraising strategies 2-3 Support a city-wide database (iCORE). Increase informatics and data analysis
3. DEVELOP A FORMAL ACADEMIC BUSINESS PLAN FOR UTAC AND PROMOTE THE CONCEPT	3-1 Articulate <u>the importance of</u> the Alliance and adapt to opportunities and generate a research group to build this vision. 3-2 Demonstrate alignment with, and specific tactics to advance, the strategic priorities of the TAHSN hospitals 3-3 Reach out to a broad scope of potential stakeholders. Explore non-incorporated partnerships with relevant (non-competitive) departments to capture appropriate patient populations 3-4 Promote private and global sector investment
4. ADAPT OUR VISION	4-1 Define within the executive and steering committee what would be the key characteristics of our division in five years based on our strategic directions. 4-2 Start to draw a longer term evolutionary change of IDCCM

ACHIEVING THE IDCCM VISION THROUGH A RENEWED ORGANIZATION





STRATEGIC DIRECTION #2

EDUCATION

Leaders of CCM education programs, together with representatives from each of the core UofT Intensive Care Units, came together to consider ways to continue to improve learner experience and consider approaches to anticipated changes. Discussion was informed by input received from key stakeholders in education and graduates (to 2010) of both the Royal College of Physicians and Surgeons of Canada (RCPSC) CCM

Residency Program and the International Fellowship program. The RCPSC provided a wealth of resources¹ as did an international competency-based training programme in Intensive Care Medicine for Europe and other world regions². Much of the information gathered confirmed what the Division does really well and highlighted concerns requiring attention. The overall outcome of this activity was an improved understanding of the strengths and limitations of our training programs. Key themes and strategic priorities also emerged to ensure the delivery of a truly world class educational experience for all our trainees. Our priority through this planning process is to position the Division to provide the world's very best training for Critical Care Medicine.

VISION

To provide the world's best training program for critical care medicine

The IDCCM provides excellent and robust training programs that offer an enormous breadth of clinical experience, access to world class expertise and teaching by hugely talented academic intensivists, educators and researchers. Trainees have access to a rich basket of resources and opportunities unrivalled elsewhere in Canada. We can, however, always do better and there are some issues requiring attention. There are also important environmental changes on the horizon, not least being a shift to competency-based education that is being embraced by the RCPSC. The implications of this for medical education generally and CCM specifically are vast and need to be fully digested. Learning from the experience of others already moving towards this model, in the US and the UK and in Toronto as well, will be a priority before fully implementing this approach.

The large size of our training programs and the lack of a city-wide vision has resulted in some inconsistencies in student experience. Variability sometimes exists in the delivery of the CCM curriculum across sites. To solve this, the traditional management framework - the residency program committee – will be replaced with a reinvigorated education leadership team that considers a truly city-wide delivery of the training program. Members will have clearly articulated roles and there will be specific goals targeted on achieving harmony and consistent experience for every learner regardless of physical location.

Other key challenges facing CCM include uncertainties regarding workforce planning (i.e. demand versus supply of intensivists); the need to further integrate new and evolving technologies into the curriculum; and a need to improve the overall evaluation process, especially in the non-Medical Expert CanMEDS domains. The paediatric training program has successfully integrated educational experience for both

¹ 2014 Goals Objectives of Training in the Subspecialty of Adult and Paediatric Critical Care Medicine; General Standards Applicable to All Residency Programs, B Standards; 2014 Specific Standards of Accreditation for Residency Programs in Adult and Paediatric Critical Care Medicine; Accreditation Reports from the 2013 Reviews of both Adult and Paediatric Critical Care Medicine Residency Programs

² <http://www.cobatrice.org/en/index.asp>

its RCPSC CCM residents and internationally recruited fellows and the opportunity exists to do the same in the adult training program.

Mentorship is important for all trainees coming through the program, especially those who come from overseas and have functioned in very different jurisdictions, yet no formal mentorship program exists. In an environment of increased international outreach we must be aware of these needs and conscious of the difficulties one can encounter during transitions. Each member of the faculty needs to provide - and receive - good mentorship. We are role models for our learners and it is a responsibility we take seriously. We need to be available and able to support the full spectrum of learners - from medical students to fellows and from those in difficulty to those who are our future leaders.

Inadequate financial resources pose a barrier to educators being able to deliver a truly cutting-edge educational experience with all the benefits of simulation, information technology, and new and novel educational approaches.

Summary Recommendations

- 1) We recommend that a key goal of the IDCCM has been - and should continue to be - to offer the world's very best training program for Critical Care Medicine.
- 2) We recommend that Education must continue to be valued as a fundamental activity integral to the success of the IDCCM. This endeavour spans the teaching of Critical Care Medicine to post-graduate residents from other specialties, core residents enrolled in the RCPSC Adult and Paediatric Critical Care Medicine Residency Programs, and Clinical Fellows enrolled in the IDCCM Fellowship Program(s).
- 3) A key priority for the immediate future should be to implement the recommendations of the *Adult Critical Care Medicine City-Wide Fellowship report*. In particular, this includes developing a city-wide "University of Toronto Adult Critical Care Fellowship Program" under the University of Toronto's leadership, and which will be awarded equal standing and complementary status to "University of Toronto Royal College Adult Critical Care Residency Program".
- 4) We recommend that stakeholders in the IDCCM engage in strategic planning to promote enhanced collaboration across each of the Adult and Paediatric hospital sites. This relationship is essential for: curriculum development, continuing numbers of rotating residents, and therefore the continued recruitment the highest quality trainees for the RCPSC CCM Residency Program.
- 5) To continue to deliver high-quality education, we recommend that additional committees or working groups should be created that can address the needs of each of our learner groups and help to harmonize and align education activities across the different ICUs in the IDCCM.
- 6) We recommend that the IDCCM continue to promote a scholarly approach to Education. This should include the use of education and teaching strategies that are current and based on the best available evidence, and also a scientific approach to the development of curricula, evaluation of education and teaching effectiveness, and evaluation of learner and teacher performance.
- 7) The IDCCM should be proactive at strengthening the established relationships with affiliated community ICUs. In particular, further opportunities to engage the Mississauga University of Toronto hospitals (Trillium and Credit Valley Hospital) should be promoted.
- 8) We recommend that resources and infrastructure be prioritised by the IDCCM Executive to support the transition towards achieving competency based training and evaluation. This is to be a major focus during the next RCPSC accreditation and inadequate progress with this change is a risk to our training status.

- 9) We recommend that improving mentorship of Critical Care Medicine Residents, Fellows, and Faculty should become a key strategic priority. This mentoring should include career counseling and planning.

STRATEGIC DIRECTION #2 EDUCATION

GOALS	ACTIONS
1. Critical Care Medicine will span the continuum of medical education	1-1 Engage in specific efforts to enhance Critical Care Medicine presence and curricula in: <ul style="list-style-type: none"> ○ <i>Postgraduate residents from other specialties</i> ○ <i>Core residents enrolled in the RCPSC Adult and Paediatric Critical Care Medicine Residency programs</i> ○ <i>Clinical Fellows completing critical care training (including Hospital/University based fellowships)</i>
2. Enhance collaboration across sites to harmonize education activities across the IDCCM and build a world class program	2-1 Strike an inclusive education team with clearly articulated roles for all members to replace the residency program committee 2-2 Target increased educational collaboration between paediatric and adult sites around CanMeds domains especially around topics such as how to teach health advocacy 2-3 Create specific working groups to address the needs of different learning groups and align educational activities across the IDCCM
3. Implement recommendations of the Adult Critical Care Medicine City-Wide Fellowship Report	3-1 Develop a city-wide University of Toronto International Adult Critical Care Fellowship 3-2 Combine all assets across the city to support the combined city-wide Fellowship Program
4. Strengthen collaborations with affiliated community ICUs	4-1 Promote increased engagement with the Mississauga Academy sites (e.g. Trillium and Credit Valley Hospital)
5. Develop a plan to transition towards competency based training and evaluation in Critical Care Medicine	5-1 Better understand the requirements of competency based training and evaluation in Critical Care Medicine 5-2 Develop a working group to develop a transition plan in preparation for the next RCPSC accreditation. 5-3 Secure the resources and infrastructure to implement this priority.
6. Improve the mentorship of Critical Care Medicine Residents and Fellows	6-1 Develop a plan to formalize mentorship with specific goals, actions and champions 6-2 Provide mentorship for scholarly activity, career development and wellness
7. Advance educational scholarship	7-1 Build a community of scholars to foster and support pedagogy in education 7-2 Develop, implement and evaluate educational projects/program and curricula that enhance scholarly activity in the Division.



STRATEGIC DIRECTION #3 RESEARCH

The goal of the working group has been to consider ways to move forward and continue to increase our research success.

The IDCCM at the University of Toronto houses many important international figures in critical care medicine today and is the leader in numerous impactful projects. To understand our excellence but also gaps in our domains and the areas for potential growth, an inventory of our research will help us, and should include lung injury, mechanical ventilation, sepsis, trauma, outcomes, neurosciences, cellular-molecular biology related to critical illness and the emerging and important research profiles of quality (with integration of quality as part of our research and scholarly programs) and education. Each of these thematic areas has different components including the basic sciences, translational research, pre-clinical and clinical work which really emphasize the spectrum of research from the bench to the bedside and back to the bench.

Research continuously needs further growth, collaboration, integration and innovation. Our group needs to establish a unifying framework that defines us as UofT. Individual research groups exist but at present there is no UofT CCM research framework that incorporates and integrates all of our scientists and researchers involved in basic science, translational and physiological research, clinical research, health services research, education and quality. Rallying everyone together within such a framework will unify the Division. Through an emerging theme in critical care, which is that critical illness is only part of a continuum, supporting emerging work in terms of pre and post-ICU trajectories and patient outcomes, will also help us to be seen as a group beyond Critical Care. We have therefore decided to incorporate this vision into our strategic directions (see strategic direction 1#3).

There are challenges to overcome. We lack sufficient funding to build a common research infrastructure at present - this was a particularly robust theme that came up in the planning process– and we sometimes *compete* rather than *collaborate* across institutions. We sometimes lack emphasis on the importance of a balanced faculty - junior to mid to senior faculty members as well as gender and race - and this may negatively influence mentorship in the Division. Gender inequality exists amongst the senior group and will take time to be substantially modified. Our communications can be insufficient and we also at times need to embrace changing paradigms for CCM research.

We believe that one important opportunity is to form a Research Alliance to achieve integration across the illness trajectory extending from clinical to basic science (see strategic direction #1). This may stimulate new monies and enable the development of a dedicated research infrastructure with formalized mentoring and targeted recruitment across the IDCCM. We can work together to develop a university-wide grant to realize the opportunities to nurture inter-hospital and cross-disciplinary research (bench to bedside and back). We can proactively brand and promote the UofT CCM group - through our own logo, city-wide activities, website, academic meetings, research centres and international research consortia – to clearly articulate we are part of the same group not just our home institutions. We can expand the CCM research day beyond CCM faculty to people who traditionally we have not collaborated with but who represent extremely important and successful scientists. Finally, we can

VISION

*Increasing our success and our research scope, expanding it beyond the ICU.
Making IDCCM the leader in Critical Care Research.*

advocate the recruitment of non-physicians - PhD scientists in basic science to augment our research productivity.

Discussion at the retreat confirmed the appropriateness of these directions and highlighted specific steps to implement some them. An inventory with a repository of research interests and activities will help to better understand the full range of critical care medicine research being done both within the IDCCM and beyond. For instance, a lot of critical care research at St Michael's Hospital is being done by people from other disciplines. Meaningful interactions will also be explored with established research groups such as AHRC, OHRI and Signmet who provide access to shared infrastructure supports that would enable a division-wide approach to clinical trials. A solid understanding of the full scope of critical care medicine research across the city – as provided by the repository – will enable us to identify gaps and areas of weakness and to advocate for site-specific or the joint recruitment of individuals to meet these very specific needs with Hospital CEOs and Vice Presidents of Research.

The need to enhance mentoring by introducing a formal mentorship program based on simple but systematic rules – with training provided to both mentors and mentees - has emerged as a cross cutting theme of all pillars of the strategic plan. Access to mentors in an environment where only a small number of senior researchers are available to a large number of junior faculty members presents a challenge. The IDCCM must assume a key role in connecting people across the city and in areas outside of the Division.

The working group released an inventory survey which will need to be completed and regularly updated (60% response rate) to understand the compliment of our research group and what people were doing – the nuts and bolts of their research activities. This was enhanced with a qualitative survey to explore the needs of more junior faculty and highlight mentorship issues.

STRATEGIC DIRECTION #3 RESEARCH

GOALS	ACTIONS
1. Build shared research infrastructure to increase productivity of IDCCM researchers	<p>1-1 Develop data infrastructure and extend to capture pre and post-ICU trajectories (examples of city-wide projects and/or structures: iCore, RECOVER, ICES); pursue shared biobanking, large animal facility</p> <p>1-2 Consider a centralized grant coordinator or access to resources for grant writing support and submission, infrastructure for REB, contracts, statistical support</p> <p>1-3 Create a research registry/inventory with repository of research interests and activities that can be easily accessed and updated (this should include an inventory of Basic Science investigators)</p> <p>1-4 Reduce duplication and/or promote IDCCM research structures, e.g. costs of the AHRC services for initiated-peer review funded studies</p>
2. Strengthen research capacity in targeted areas	<p>2-1 Identify and build research capacity in targeted areas of for IDCCM (e.g. Neurocritical care)</p> <p>2-2 Confirm process for city-wide recruitment, collaborating with IDCCM Director, Site Chiefs / Directors and as appropriate, with VPs Research Institutes, for new research hires</p> <p>2-3 Pursue endowed chair for CCM in collaboration with sponsoring departments, hospital foundations and University</p>
3. Enhance mentoring for all levels of researchers	<p>3-1 Find accessible mentors who are like minded with similar research interests; network with local and national research</p> <p>3-2 Improve the structure and faculty complement (recruitment of mid-career faculty and women) for mentoring fellows and junior faculty</p> <p>3-3 Develop longitudinal mentoring program from junior faculty to mid-career to senior staff to retirement</p>
4. Facilitate greater integration between basic, clinical and health services research across disciplines and hospital sites	<p>4-1 Facilitate the emergence of team projects for IDCCM, which could include requirements for basic and clinical investigation and participation by multiple hospital sites; identify topics for team grant</p> <p>4-2 Open the Research Day to include representation from the broader scientific community; include logo for IDCCM and branding on all research presentations to heighten profile</p> <p>4-3 Continue with city-wide rounds introducing speakers from different disciplines (e.g. Physiology Rounds)</p>
5. Engage in greater collaboration at the local, national and international level	<p>5-1 Create a IDCCM city-wide research group to facilitate achieving our goals;</p> <p>5-2 Support the development and implementation of the research focus for the Critical Care Medicine Alliance proposal</p> <p>5-3 Align with CCCTG/CCTBG and other national research groups Support the implementation of research goals for International Outreach, including establishing Toronto as the home for InFACT</p>



STRATEGIC DIRECTION #4

CLINICAL PRACTICE & QUALITY IMPROVEMENT

The ultimate objective of the Division is to become a leader in Critical Care Quality Improvement (QI) through a collaborative infrastructure that promotes sustainable, evidence-based, and cost-effective care leading to reduced harms and improved outcomes while increasing efficiency and value for the health care system. A barrier to this lofty goal, and any subsequent actions, is the lack of any existing framework or sustainable infrastructure at present to support **clinical practice and quality improvement** (CPQI). A city-wide CPQI committee would help to address this within the IDCCM and provide clearly identifiable leadership for all subsequent actions of this discussion. Representation of the committee on the Division Executive would also promote the value and commitment of the Division to CPQI.

VISION

To be leaders in critical care quality Improvement that promotes sustainable, evidence-based, and cost-effective care leading to reduced harms, improved outcomes while increasing efficiency and value for the health care system

Additionally, although there is a wealth of QI work ongoing across the city, there exists at present no common vehicle for discussion, planning, coordination or leadership of QI activities across hospital sites. Hospital sites are not always interested in the same QI challenges (at least not at the same time) and there is a tendency to reinvent the wheel without coordination and collaboration. The city-wide executive CPQI committee could make an important advance by promoting specific themes and coordinating and integrating activities across sites.

Another important step towards achieving our objective will be developing and implementing elements of CPQI into the curriculum of our residency training programs and supporting and encouraging interested faculty to enroll in formal training programs in CPQI that exist. The adult RCPSC program requires 6-months of research/scholarly activity for every CCM resident. The Department of Medicine's *Co-learning Curriculum* will be explored as a possible model to meet this requirement. Incorporating CPQI into the formal educational program and providing support to those who teach it would effectively help the Division meet this requirement and build capacity.

CPQI offers an exciting and valid career path for interested academic clinicians. A new job description for *Clinicians in Quality and Innovation* now exists and education and research scholarship contributions made to CPQI are recognized for promotion through the ranks (creative professional activity). Work in CPQI tends to be inter-professional by nature. Fostering the engagement of our colleagues in CPQI initiatives will lead to the development of more non-physician QI leaders within the IDCCM and an expanded view on CPQI problems across the city.

Improved coordination, promotion and support of locally initiated projects across the city and beyond is important to ensure dissemination across sites and prevent duplications. One of the biggest challenges in promoting collaboration and scholarly QI work resides in the conflicting interests of different stakeholders (CCSO, LHIN, University and IDCCM).

Hospital QI infrastructure is not always aligned with ICU initiatives (and vice-versa) and there are internal and external competing demands for measurement and reporting. There is a lack of clinically-

relevant or actionable data in existing reported data (CCIS) with disconnects between balanced scorecard/CCIS metrics and what is deemed to be important in ICU. There is also a perceived lack of alignment with major stakeholders. The shaping of common goals and objectives by the IDCCM CPQI committee in collaboration with these various stakeholders, and the subsequent alignment of current and future work around these goals, is necessary to ensure success. UofT community affiliated sites are known to be very keen and interested in shared QI initiatives and may offer a terrific opportunity to develop collaboration and/or leadership. Overall goals for CPQI confirmed at the retreat identified key priorities for the next 12-18 months.

1. **Strike a city-wide CPQI committee in the IDCCM with a mandate to develop a brand of excellence in clinical practices and quality improvement by promoting collaborative activity in quality improvement and standardization of clinical best practices.** *Including representation of this committee on the Division Executive will promote the value and commitment of the Division to CPQI.*
2. **Create a sustainable city-wide infrastructure for the collection of clinical and administrative data to document clinical practices and quality improvement.**
3. **Establish QI as a legitimate pathway for academic recruitment, promotion and faculty advancement.**

Summary Recommendations

We recommend the immediate development and implementation of a city-wide executive CPQI committee with the mandate of developing a brand of excellence in clinical practices and quality improvement by promoting collaborative activity in quality improvement and standardization of clinical best practices.

- We recommend active engagement of the IDCCM to integrate CPQI with hospitals, LHIN and University Departments to develop a shared vision and goals for CPQI.
- We recommend the IDCCM undertake an active role in the funding, development and implementation of QI infrastructure (informatics, human and capital resources) to support all CPQI activities.
- We recommend integration and enhanced promotion of CPQI activity into all existing educational activities at the IDCCM.
- We recommend the IDCCM take an active role in promoting QI work as scholarly enterprise, and foster and support the development of quality improvers/innovators within the division.
- We recommend formal inter-professional engagement within the CPQI activities of the IDCCM.

STRATEGIC DIRECTION #4 - CLINICAL PRACTICE & QUALITY IMPROVEMENT

GOALS	ACTIONS
1. Create a brand of excellence in clinical practices and quality improvement	<p>1-1 Strike a standing city-wide CPQI committee, with a focus on collaboration and scholarly activity targeting clinical practice and quality improvement. The committee should be represented on the IDCCM executive.</p> <p>1-2 Create a list of impactful and standardized IDCCM clinical practices that will create a benchmark for measurement and quality improvement.</p> <p>1-3 Create an environmental scan or inventory of other resources, initiatives and infrastructure across the city (inside and outside of CCM) with the goal of improving opportunities, engagement and participation in QI.</p> <p>1-4 Become active members and participants in external QI initiatives (cQuIPs, UTCPS, CCCTG QG)</p>
2. Integrate IDCCM / LHIN / Hospitals QI vision	<p>2-2 Actively engage hospitals, university departments and the LHIN/CCSO to align, consolidate and improve data collection and measured QI metrics across hospitals in the city.</p>
3. Foster QI infrastructure	<p>3-1 Actively engage hospitals, university departments and the LHIN/CCSO to support infrastructure for data collection and QI implementation.</p> <p>3-2 Create/support a city-wide quality database: iCORE</p> <p>3-3 Promote a shared information system with new EMRs under development – CCIS</p> <p>3-4 Create standards of QI projects implementation</p>
4. Integrate QI and education	<p>4-1 Increase the exposure of Quality Improvement methodology and work to our trainees</p> <p>4-2 Increase integration of Quality Improvement into the longitudinal educational curriculum</p> <p>4-3 Develop an award for QI-related work to be conferred at Residents' day</p> <p>4-4 Integrate with existing QI educational programs through UofT Center for Quality and Patient Safety</p>
5. Promote QI Work as a Scholarly Enterprise	<p>5-1 Increase exposure of QI scholarly work across the city:</p> <ul style="list-style-type: none"> ○ Increase presentation of QI-related scholarly projects at Clinical Research in Progress Rounds (CRIP) ○ Invite quality improvers and Innovators as Visiting Professors and Grand Rounds <p>5.2 Foster the development and success of Quality Improvers and Innovators</p> <p>5.3 Align Quality Improvement with existing (UofT) and proposed mentoring programs</p> <p>5.4 Ensure sufficient academic resources are available and allocated to Quality Improvement work</p> <p>5.5 Outline standard job description, resources, promotion stream and mentorship for new faculty entering the IDCCM with the Quality Improver/ Innovator</p>
6. Increased Inter-professional Engagement	<p>6-1 Develop a City-Wide IP Quality Improvement Day</p> <p>6-2 Include allied healthcare quality improvers in the IDCCM QI committee</p>



STRATEGIC DIRECTION #5

FACULTY & FACULTY AFFAIRS

It is striking that the overarching vision presented, *“to achieve satisfaction, productivity and equal opportunity for all IDCCM faculty members at all stages of their career from appointment as clinical associate to that of full professor”* is something most faculty members take for granted in their working life at the University of Toronto. Members of the working group are commended for adopting such a comprehensive approach through this planning process to improve their understanding of what hasn’t worked well in the Division and why. Their work may have revealed a systemic problem previously undetected; that of a cadre of people who - by existing beyond the walls of four clinical Departments - lack a general awareness of resources available to support and enable their career development. Further, it is possible that an unintended consequence of the current governance model – where the Director was not directly engaged in the administrative processes of academic appointment, promotion and faculty affairs of CCM faculty – is a perception of disparity across sites amongst faculty members and a general lack of clarity about who specifically is responsible to ensure a safe and supportive workplace that fosters their academic growth, nurturing their career development and overall wellbeing. An important and immediate action resulting from this planning process is discussion between the Division Director and Chairs of the Departments of Anaesthesia, Medicine, Paediatrics and Surgery to consider an expanded mandate for the Director (see strategic direction #1).

VISION

Achieve satisfaction, productivity and equal opportunity for all IDCCM faculty members at all stages of their career from appointment as clinical associate to that of full professor.

A NEED FOR STRUCTURED MENTORSHIP & CAPACITY BUILDING

The informal approach to mentorship in the Division was examined and found lacking at several levels. Junior, mid-career and senior faculty members and those with gender and ethnicity issues may not all being optimally served by the present structure. Mentorship is important for trainees too as they cope with new circumstances and demands. The present approach is a little hit and miss and some trainees are sometimes not getting advice to guide them through institutional processes and help them integrate; a situation that leaves some resentful, and feeling excluded. Implementation of a formal and structured mentorship program is recommended (Sharon Straus)

Mid-career and senior clinician-scientists, clinician-investigators and clinician-educators have differing needs relative to promotion, transparent recruitment processes (including access to opportunities) and leadership skills development. Many established members of the Division face shrinking research budgets, a greater spectrum of available new technologies/methodologies, ever-evolving publication demands, cross-cultural collaborations, and an increased need to articulate the significance of their research to those making funding decisions. With such divergent demands, mentors with specific talents and expertise are critical if we are to achieve collectively a joint vision for success. Possible proposals for access to the following resources has been recommended.

- Mentor training specifically focused on “How to become a good mentor” is suggested/recommended (David Sackett).

- A promotion workshop for members of the IDCCM is also suggested/recommended (Rob Silver and Martin Schreiber)
- Engage Mary Waller, Professor of Organization Studies at the Schulich School of Business, in an “Open Forum” session (possibly invited as a visiting professor or to Critical Care Grand Rounds) to open a dialogue about Team Dynamics (building and organizational behavior)
(<http://research.schulich.yorku.ca/client/schulich/FacultyProfile.nsf/webpagekey/mary+waller?OpenDocument>)

In summary, building a strong culture of mentorship in the Division will promote enhanced distribution of opportunities, support, satisfaction and productivity. Investment in mentor development; mentee empowerment; mentoring agreements (formal program) and a formal evaluation process will help us succeed.

EQUALITY

The field of Medicine is undergoing a dramatic demographic shift with increasing numbers of women in academic medicine, men requesting paternity leave and racial and ethnic groups making up a larger proportion of medical graduates. This has contributed to changes in roles/expectations and we face an “adaptation challenge”. In the face of this change- and despite the equal ratio of female to male graduates from medical schools- the proportion of females represented in academic medicine decreases proportionally to the height of the academic ladder. The percentage of women in medical school faculty positions has increased from 26% in 1997 to 37% in 2012, with women under-represented in the higher echelons of academic medicine, making up only 19% of those attaining full professor rank (dependent on the chosen clinical specialty). In Critical care medicine, the notable under-representation of women in critical care congresses does suggest the existence of a ‘glass ceiling’ in this field. This equality gap is also present between racial and ethnic groups with under-representation at the full-professor level for certain groups; 31% of whites are full professors, only 11-19% for African American, Asian and Hispanic physicians have reached full professor level. Postulated reasons for inequality include:

- Lack of effective mentorship: Lack of same-sex mentors and role models for women; Lack of racial/ethnic concordance between mentors and mentees perceived as an obstacle for mentees.
- Constraints contributing to the glass-ceiling phenomenon: persistence of traditional gender roles in the medical environment, perceptions that women need to be better than men at their professions in order to be considered equal.
- Concerns about balancing work and family: devotion to family responsibilities may also constrain professional advancement.

The planning process revealed significant disparity between those invited to comment in their perceptions of career development within IDCCM. Both ends of the spectrum were represented with those who were very satisfied with their experience in the IDCCM, compared to a number of responses indicating a disconnected and disenfranchised group. Strengths of the IDCCM’s include effective mentorship, diversity of academic interests and immense resources. But counterfactual statements recognized weaknesses including the perception of poor mentorship, lack of collaboration and feelings of isolation. Threats appear to be the lack of an inclusive culture, absence of transparency for promotion, and perceived unequal opportunities.

The Division will build on these strengths, minimize the weaknesses identified and seize the opportunities to counteract threats to the diversity, transparency and culture of IDCCM. There is strength in diversity. The issues raised are not exclusive to women, but shared by a number of staff members who could be perceived to be in a “vulnerable” position. The groups identified as potentially vulnerable include:

- Scientists or junior scientists facing junior review
- Those without a mentor or strong supporter/advocate (within the IDCCM or/and UofT environment)
- Those disconnected or isolated from the “action” (individuals who feel they do not belong to a “group” within the department, real or perceived)
- Clinical Associates
- Individuals “transitioning” – this may actually include any staff going through periods of professional (personal) transition but especially during the junior years

Finally, to implement a gender perspective in academic medicine it is necessary that both male and female physicians participate and embrace gender aspects as important. To facilitate implementation and to convince those who are indifferent we recommend men with an interest in gender issues be engaged in this work.

ADVOCACY RESOURCES AND REGULATIONS AVAILABLE TO CLINICIANS

The IDCCM is expected to adhere to all existing regulations for the work place within the University of Toronto. These include (but are not limited to) *The Faculty of Medicine, University of Toronto Standards of Professional Behaviour for Medical Clinical Faculty* and *Standards of Professional Practice Behaviour for all Health Professional Students*. Three options exist to clinicians who wish to discuss a wide array of concerns pertaining to treatment by authorities or colleagues and to assist with resolving disputes in a confidential manner. These include the (i) Office of the Ombudsperson at the University of Toronto (ii) the Clinical Faculty Advocate or (iii) an appointed individual in a similar role within individual Departments/Divisions. It is recommended that a brief description of the specific function of each office (with a link) be posted on the Division website.

Possible proposals: Invite the Associate Dean, Equity & Professionalism to act as an external consultant to the IDCCM Mentoring program; Invite acclaimed speaker on “Equality & Fairness” in academic medicine or/and job satisfaction to speak at either the yearly CCCF, the CCM research day; build a series of talks into the CCM fellows’ teaching day to create a forum for open communication and transparency; include topics like the Harvard Business review.

CITY-WIDE TEAM BUILDING AND PARTICIPATION

An increase in team activities across sites will help to build and enhance city-wide relationships, working practices and participation. It is recommended that the calendar of existing city-wide activities be promoted via the Division website. Proposed new/enhanced city wide events include:

- *A Formal Fellows Graduation Ceremony:* We would enhance the existing resident’s end-of-term evening to a more formal graduation ceremony. This evening would include all fellows from U of T Adult and Hospital (soon to be City Wide International) fellowships. All faculties would be encouraged to attend and a formal ceremony would occur in which the fellows would be presented with a certificate of completion of fellowship with prizes and other awards.
- *Fellows Welcome Evening:* Each year in September we should hold a casual welcome drinks for new fellows. All fellows and faculty should be encouraged to attend.
- *U of T IDCCM Annual Retreat:* We propose an Annual U of T IDCCM retreat for all faculty and students. This would allow us to meet in a more formal manner each year and discuss the direction of the Division and recognize our own achievements and successes. This meeting could also include research themes annual update break-out sessions

- *Research Theme Annual Updates:* At the U of T IDCCM retreat we should have research theme specific sessions to allow researchers from common fields to update each other and gain advice on existing or developing research programs from their peers.

SUMMARY RECOMMENDATIONS

1. We recommend the development, implementation and valuation of a mentorship program within the Division. This program should target both mentees and mentors, with the goal to enhance the satisfaction, productivity and opportunities of all Division members.
2. We recommend a higher level of priority and transparency with regard to the route to, requirements for and timing of academic success and promotion.
3. We recommend that issues of equality and professionalisms are considered as central to all activities of the Division. This should include access to, and encouragement for, members to take up leadership positions within the Division and beyond.
4. We recommend that issues of equality and professionalism are incorporated into the proposed mentorship program.
5. We recommend that the IDCCM Steering Committees minutes becomes open to all Division members with the aim of enhancing transparency within the Division.
6. We recommend a clearer “sign posting” of available University wide resources such as the Ombudsperson and the Clinical Faculty Advocate and of existing University policies. These resources should be highlighted in the mentorship program. Consideration of the appointment of a “local champion(s)” within the IDCCM to add to the identified roles of Ombudsperson and Clinical Faculty Advocate
8. We recommend a review of city-wide activities to try to enhance team work, team building and team participation within the Division.

STRATEGIC DIRECTION #5 FACULTY & FACULTY AFFAIRS

GOALS	ACTIONS
1. Expand the mandate of the Division Director to include direct engagement in the administrative processes of academic appointment, promotion and faculty affairs of CCM faculty	1-1 Prioritize a meeting of the four Department Chairs and the Division Director to consider the findings of the working group and solve systemic problems identified. 1-2 Examine the current governance model; develop and implement recommendations for change
2. Build capacity in mentorship to provide meaningful support for faculty at junior, mid and senior stages of their careers	2-1 Issue/provide reference to Straus/Sackett mentoring book to all junior faculty and more senior members who are considering becoming a mentor. 2-2 Develop/implement a formal mentorship program inclusive of issues of equality and professionalism based on simple but systematic approaches 2-3 Provide formal training for mentors and mentees 2-4 Appoint dedicated mentors for areas of special need i.e., 3-Year Review, Promotion and Retirement

3. Promote equality and transparency in all that we do	<p>3-1 Address barriers to Equality:</p> <ul style="list-style-type: none"> ○ Gap analysis (purposive sampling from either end of the spectrum); Qualitative methodology to analyze from the ‘cellar’ and the ‘roof’ perspective <p>3-2 Bridge the ‘equality divide’:</p> <ul style="list-style-type: none"> ○ Transparency of benchmarks for promotion of faculty ○ Enhance professional options for balancing career/personal responsibilities ○ Monitoring trends and emerging issues affecting the ‘vulnerable’ in CCM ○ Fostering collaborative environment ○ Portal for voicing issues through confidential channels such as the appointed ombudsman, clinical faculty advocate or local champion
4. Create a safe and healthy workplace environment and nurture a culture of professionalism	<p>4-1 Clearly articulate/“sign post” UofT resources, i.e, Ombudsperson, FoM Clinical Faculty Advocate and University policies that exist.</p> <p>4-2 Consider the appointment of a “local champion(s)” within the IDCCM to enhance linkages to University officials</p> <p>4-3 Advocate the use of resources/regulations available to support clinicians</p>
5. Support city-wide team building and participation	<p>4-1 Introduce city-wide <i>Welcome Evenings</i> for new trainees and formal <i>Graduation Ceremonies</i></p> <p>4-2 Host annual city-wide IDCCM Retreats and Research Theme Annual Updates</p>



STRATEGIC DIRECTION 6 INTERNATIONAL OUTREACH

An International Outreach Planning Committee, led by co-chairs, John Marshall and Neill Adhikari, and including Andrew Baker, Karen Burns, Claudia dos Santos, Robert Fowler, Alberto Goffi, and Hannah Wunsch was established as a part of this planning process to identify key themes and strategic priorities related to international critical care that overlap with, but may not be addressed by, other committees informing the planning process. International outreach as a defined priority represents a new direction for the IDCCM and an attempt was made to catalog current activities and to engage with those members of the Division with active clinical, educational, and research activities in this area. At very various levels, there is extensive international engagement by the IDCCM faculty and this area holds great promise for the University of Toronto. .

VISION

Harness collective expertise of the IDCCM to shape the evolution of global health needs in critical care.

1. **International Outreach Committee**

Academic intensivists at the University of Toronto have made multiple contributions to the development of global intensive care – assuming leadership roles in research and the development of fundamental concepts in critical care, in the education of young intensivists from around the world, and in guiding the activities of professional societies and scientific journals. Collectively we are recognized as one of the leading academic critical care groups in the world. Increasingly, our activities are shifting from individual accomplishments of single intensivists to collaborative activities of like-minded groups of Toronto-based clinicians. At the same time, the needs and the opportunities for global collaboration are increasing. University of Toronto-based intensivists played central roles in the clinical and research response to SARS, H1N1 influenza, and this year, Ebola – emerging infections that underline the reality that critical care relies on global collaboration and engagement.

The success of the Canadian Critical Care Trials Group (CCCTG) – a collaborative group founded by University of Toronto intensivists in 1989 – has led to the creation of sister groups around the world. These groups share scientific approaches developed by the CCCTG. They have recently formed the International Forum for Acute Care Trialists (InFACT) under the leadership of John Marshall to promote collaborative investigator-led research around the world.

Toronto is an attractive venue for trainees in intensive care from around the world. Attracted by the range of clinical and research opportunities available in Toronto, many of these have gone back to their home countries and become leaders in critical care. It is both timely and strategically appropriate for the IDCCM to transform this developing profile into a structured focus on international critical care.

2. **Clinical Response Capacity**

The recent experience with Ebola in West Africa has underlined both the need for rapid responsiveness, and the role that U of T intensivists have played in addressing this need. In particular, Rob Fowler spent the past year on sabbatical as a consultant to the World Health organization (WHO) responding to a number of serious infectious disease outbreaks including H7N9 influenza in China, MERS CoV infection in Saudi Arabia and the Middle East, and most recently, Ebola in west Africa including Sierra Leone, Guinea, Liberia, and Nigeria. That experience has both shaped an understanding of the immediate clinical needs in response to a major acute care crisis, and forged links with key international decision-makers such as the WHO which has come to appreciate the key role played by critical care in the response to acute

emergencies. The IDCCM is well-positioned to create a response capacity that could, working in conjunction with WHO or Médecins sans Frontières (MSF) and others, provide clinical support in the response to future acute care emergencies, including pandemics, floods, hurricanes, and wars.

3. *Educational Outreach*

Toronto intensivists have played an important role in education in low and middle income countries. Neill Adhikari has contributed to the development of the WHO Integrated Management of Adolescent and Adult Illness District Clinician manual and related acute care training materials and to a WHO course on Severe Acute Respiratory Infection. Laura Hawryluk has helped to start the first CCM residency training in Nepal working with a formal international fellow, Subhash Acharya. Liz Wilcox and Neill Adhikari have contributed to CCM teaching as part of the Toronto-Addis Ababa Academic Collaboration. We have played a central role in the development of clinical practice guidelines for sepsis and we have collaborated with the WHO and with international initiatives such as the BASIC course developed by Charles Gomersall in Hong Kong to teach principles of intensive care in Africa and southeast Asia. We can expand these educational activities on the ground. The international fellowship program can also support U of T placements for specialty residents in countries where we have established collaborations. Moreover, with the interest of the World Federation of Societies of Intensive and Critical Care Medicine, and with the technical support of the Department of Information Technology at Ryerson University (Dr. Alireza Sadeghi), there is an immediate opportunity for us to take the lead in creating a Wiki-style online educational resource for acute care that could be made widely available to clinicians around the world.

4. *InFACT and International Research Opportunities*

University of Toronto-based intensivists have a strong tradition of international leadership in the science of critical care. Current initiatives include the international weaning study led by Karen Burns; the LUNG SAFE study led by a group of Toronto intensivists including John Laffey, Art Slutsky, and Laurent Brochard; Rob Fowler is engaged in studies on MERS CoV with colleagues in Saudi Arabia; and Neill Adhikari is collaborating in a trial of fluid management strategies in Uganda. Toronto has been the home of the CCCTG, and is the current home of the International Forum for Acute Care Trialists (InFACT). InFACT has solid roots in Toronto. It is chaired by John Marshall, and include Laurent Brochard (REVA Network), John Laffey (Irish Critical Care Trials Group) and Brian Cuthbertson (Scottish Critical Care Trials Group) all of whom are based in Toronto. There is an immediate need to establish a secretariat for InFACT that can coordinate its various activities and maintain communications amongst its members. Toronto is an obvious inaugural home for the InFACT secretariat and could also be the base for at least one key InFACT working group, for example the InFACT Outcome Measures Working Group.

SUMMARY RECOMMENDATIONS

1. We recommend that the Interdepartmental Division of Critical Care Medicine establish an International Outreach Committee to develop and coordinate academic activities related to international critical care medicine.
2. We recommend that the International Outreach Committee partner with the Dalla Lana School of Public Health, HPME, Médecins sans Frontières and others to develop a WHO collaborating centre in Toronto to build/provide clinical response capacity for ongoing global health challenges such as Ebola and future large scale emergencies. This objective should encompass clinical care, research and education.
3. We recommend that the IDCCM partner with the Department of Information Technology at Ryerson University, and with the World Federation of Societies of Intensive and Critical Care Medicine (WFSICCM) to develop an online, Wiki-style textbook of intensive care medicine that would be widely available free of charge to clinicians around the world who are charged with

- the clinical care of acutely ill patients, and that would be updated on a real time basis by the global critical care community.
4. We recommend that the IDCCM support the establishment of an international coordinating centre for the International Forum for Acute Care Trialists (InFACT) in Toronto. In addition to a coordinating secretariat that would guide the activities of InFACT, the centre would house at least one of the InFACT working groups, and would coordinate and promote an international research fellowship program.

STRATEGIC DIRECTION #6 INTERNATIONAL OUTREACH

GOALS	ACTIONS
1. Formalize international outreach in the IDCCM	1-1 Incorporate the International Outreach Committee into the organizational structure of the IDCCM with a mandate to develop and coordinate academic activities related to international CCM
2. Establish a WHO Collaborating Centre to build/provide clinical response capacity for pandemic/acute care emergencies	2-1 Drive/champion the development a business proposal in partnership with the Dalla Lana School of Public Health, HPME, Médecins sans Frontières and others 2-2 Build clinical response capacity for pandemic and acute care emergencies and identify training opportunities for CCM trainees 2-3 Identify WHO policy development placements for CCM trainees 2-4 Promote the UofT brand for excellence in CCM research 2-5 Position the IDCCM as a resource for evidence-based scholarship
3. Expand international education capacity and promote CCM as an internationally recognized specialty	3-1 Expand international educational partnerships to stimulate opportunities for faculty/trainees to contribute to the long term development of CCM as a discipline in low/middle income countries 3-2 Lead the development of a Wiki-style online educational resource for acute care that would be widely accessible to clinicians around the world. Collaborate with the Department of Information Technology at Ryerson for technical support and the World Federation of Societies of Intensive and Critical Care Medicine
4. Establish a INFACT co-ordinating centre in Toronto	5-1 Partner with InFACT to create an umbrella global health CCM clinical trials group located in Toronto 5-2 Establish a secretariat for InFACT that can coordinate its various activities and maintain communications amongst its members 5-3 Establish at least one Working Group for InFACT in Toronto