



The following Motions and Documents were considered by the GFC Academic Planning Committee at its Wednesday, March 23, 2016 meeting:

Agenda Title: **Proposed Supplemental Application Fee for the Doctor of Medicine Program**

CARRIED MOTION: THAT the GFC Academic Planning Committee recommend, with delegated authority from General Faculties Council, that the Board of Governors approve the proposed Supplemental Application Fee for the Doctor of Medicine Program, as set forth in Attachment 1, to take effect July 1, 2016.

Final Item 4

Agenda Title: **Proposal for the creation of a Critical Care Department, Faculty of Medicine and Dentistry**

CARRIED MOTION: THAT the GFC Academic Planning Committee recommend to General Faculties Council the establishment of a Department of Critical Care Medicine, as submitted by the Faculty of Medicine and Dentistry, and as set forth in Attachment 1, and the concurrent termination of the Division of Critical Care Medicine, to take effect July 1, 2016.

Final Item 5



OUTLINE OF ISSUE

Agenda Title: **Proposed Supplemental Application Fee for the Doctor of Medicine program**

Motion: THAT the GFC Academic Planning Committee recommend, with delegated authority from General Faculties Council, that the Board of Governors approve the proposed Supplemental Application Fee for the Doctor of Medicine Program, as set forth in Attachment 1, to take effect July 1, 2016.

Item

Action Requested	<input type="checkbox"/> Approval <input checked="" type="checkbox"/> Recommendation <input type="checkbox"/> Discussion/Advice <input type="checkbox"/> Information
Proposed by	Vice-Provost & University Registrar on behalf of the Faculty of Medicine and Dentistry
Presenter	Lisa Collins, Vice-Provost & University Registrar; Diane Baker, UME Team Lead, Admissions and Marc Moreau, Assistant Dean, Admissions, Faculty of Medicine and Dentistry
Subject	Faculty of Medicine Supplemental Application Fee

Details

Responsibility	Provost and Vice-President (Academic)
The Purpose of the Proposal is (please be specific)	To establish a Supplemental Application Fee for the Doctor of Medicine program in the amount of \$55 to cover costs of the application process within the Faculty of Medicine and Dentistry. The Supplemental Application Fee of \$55 will be collected from all applicants to the MD program, in addition to the University of Alberta undergraduate application fee (currently set at \$125 for new applicants and \$75 for current or former UAlberta students).
The Impact of the Proposal is	In addition to the University of Alberta undergraduate application for admission process, MD applicants must also complete a secondary application that is specific to the MD program. MD applicants are also subject to a specific set of additional requirements, including the CGPA, MCAT, personal activities and letters of reference. There are about 1600 applicants each year and 480 are selected for interview (Multiple Mini Interview) after reviewing the previously noted requirements. Costs for the secondary medicine application including the MMI are incurred by the Faculty of Medicine & Dentistry. A supplemental application fee will allow the Faculty to recover a portion of its costs and sustain the current secondary application process. Should this fee not be approved, the Faculty would be unable to cover these costs and the applicant experience could suffer as a result.
Replaces/Revises (eg, policies, resolutions)	Creates a new supplemental application fee for the Doctor of Medicine program.
Timeline/Implementation Date	Collected from students applying to the MD program on or after July 1, 2016
Estimated Cost	N/A
Sources of Funding	N/A
Notes	Representatives of the proposing unit will also be in attendance at the meeting of GFC APC to respond to questions.



Alignment/Compliance

Alignment with Guiding Documents	<i>University of Alberta Calendar</i> ; UAPPOL (University of Alberta Policies and Procedures On Line)
Compliance with Legislation, Policy and/or Procedure Relevant to the Proposal (please <u>quote</u> legislation and include identifying section numbers)	<p>1. Post-Secondary Learning Act (PSLA): The <i>PSLA</i> gives GFC responsibility, subject to the authority of the Board of Governors, over academic affairs (Section 26(1)). Section 26(1)(o) provides that GFC may make recommendations to the Board of Governors on a number of matters including the budget and academic planning. GFC has thus established an Academic Planning Committee (GFC APC).</p> <p>2. GFC Academic Planning Committee (3. Mandate of the Committee) “APC is responsible for making recommendations to GFC and/or to the Board of Governors concerning policy matters and action matters with respect to the following: [...]”</p> <p>4.c. To seek the recommendation of GFC regarding any new fee that will be levied upon a substantial group of students, prior to the recommendation by APC of any such fees to the Board of Governors. (A substantial group of students is defined as any one (or all) of the following three classes of students: (a) undergraduate students, (b) doctoral level students, and/or (c) graduate students pursuing studies other than those at doctoral level.”</p> <p>3. Board of Governors General Terms of Reference, Section 1 (b): “The Board has delegated to each Committee responsibility and authority to make decisions on behalf of the Board in the Committee’s defined area of responsibility except to the extent that such authority has been specifically limited by the Board in the Terms of Reference for the Committee.”</p> <p>4. Board Finance and Property (BFPC) Terms of Reference, Section 3(d): “3. Without limiting the generality of the foregoing, the Committee shall: [. . .] d) review and recommend to the Board tuition and other like fees[.]”</p>

Routing (Include meeting dates)

Consultative Route (parties who have seen the proposal and in what capacity)	<p>Registrar’s Advisory Committee on Fees (RACF), at which each proposal was discussed with the Committee members and the representatives from the Faculty of Medicine and Dentistry.</p> <p>At APC on February 10, 2016 the proposal was reviewed and recommended to come back with changes to the budget. The Faculty of Medicine and Dentistry has reviewed and made changes to budget and amount of the proposed fee.</p>
Approval Route (Governance) (including meeting dates)	<p>GFC Academic Planning Committee – March 23, 2016 (for recommendation); Board Finance and Property Committee – April 26, 2016 (for recommendation); Board of Governors – May 13, 2016 (for final approval)</p>
Final Approver	Board of Governors



Attachment 1: Proposal for Supplemental Application Fee for the Doctor of Medicine program.

Prepared by: Angelene Lavers, Office of the Registrar, Angelene.Lavers@ualberta.ca

Registrar's Advisory Committee on Fees (RACF)

For the meeting of: [REDACTED]

Item No. < [REDACTED] >

Request for Approval for: MD Program Supplemental Application Fee

Fee Type (see end of form for definitions)*:

- Mandatory Student Instructional Support Fee
- Alternate Delivery Fee
- Cost Recovery Fee / Revenue Generation
- Other

OUTLINE OF ISSUE:

The primary application fee to the University of Alberta is \$75 for current or former UofA undergraduate students or \$125 for students new to the UofA. Applicants complete a secondary medicine application for which there is currently no additional fee.

The secondary medicine application requirements include the CGPA, MCAT, personal activities and letters of reference. There are about 1600 applicants each year and 480 are selected for interview (**Multiple Mini Interview**) after reviewing the previously noted requirements. The MMI process is also managed within the secondary medicine application. Costs for the secondary medicine application including the MMI are incurred by the Faculty of Medicine & Dentistry.

Put N/A in any boxes that do not apply

Proposer

Faculty/Department	Faculty of Medicine & Dentistry, Undergraduate Medical Education
Dean/Chair	Dr Marc Moreau, Assistant Dean, Admissions
Primary Contact (Name, phone number, and e-mail)	Dr Marc Moreau, 492-9525, mmoreau@ualberta.ca
Secondary Contact (Name, phone number, and e-mail)	Diane Baker, 492-9525, diane.baker@ualberta.ca

Item

Purpose of Fee (what it is to be used for)	Secondary Medicine Application, Multiple Mini Interviews , Data Analysis of Current Admissions Processes
Proposed Amount	\$55.00
Previous Fee Amount (if this is a new fee, please indicate that here)	New Fee
Requested Implementation Date	July 1, 2016
The Impact of the Fee (number of students affected, etc.)	1,600 Applicants
Collected Centrally or by Department	Centrally

Routing (For Mandatory Student Instructional Support Fees and Non-Instructional Fees)

Consultative Route (parties who have seen the proposal prior to Registrar's Advisory Committee on Fees and in what capacity)	Undergraduate Medical Education (UME) Associate/Assistant Deans Meeting; chaired by Associate Dean UME; overall operations of UME, including Admission MD Program Committee (MDPC); chaired by Associate Dean UME; policy committee for the MD program
Student Group Consultative Route	Medical Students Association (MSA) President
Advisory Route (RACF) Include dates	May 26, 2015
Approval Route* (Governance) *The approval process is initiated in January for the next academic year	GFC Academic Planning Committee (APC) Board Finance and Property Committee (BFPC) Board of Governors (BG)
Final Approver	Board of Governors

Attachments (each to be numbered 1 - <>)

- 1 – Secondary Application Fee Proposed Budget
- 2 – MMI 2015 Expenses
- 3 – MD Program Application Fees Across Canada

Budget for proposed supplemental application fee:

Annual Expense

Secondary Medicine Application

- *Service Level Agreement to support secondary medicine application* \$ 5,000.00
 - o *Annual SLA Agreement with Med IT*
- *Software development/enhancements (annual estimate only)* \$15,000.00

Multiple Mini Interviews (see attached spreadsheet of costs associated with the 2015 MMI) **\$34,769.77**(MMI 2015 expenses)

- *480 applicants interviewed over one weekend*
- *160 interviewers, 150 volunteers, 10 staff*
- *Expenses related to coordination and implementation of interviews*

Data Analysis of Current Admissions Processes (personnel) **\$30,000.00**

*Current staff involved in analysis: Dr Moreau, Dr Eitzen, Dr Lai,
Ms. Baker, Ms Lepage-Wilcox, Ms Schreurs*

Total **\$84,769.77**

Cost per applicant based on 1600 applicants $\$84769.77 / 1600 = \52.98

Requesting \$55.00 per applicant to support current admissions processes

MMI 2015 Expenses (April 1, 2014-March 31, 2015)

		27	
Account Description	Amount		Entry Date
Computer Hardware <\$5000	\$ 279.12		10/04/2014
Supplies & Services General	\$ 178.09		09/01/2015
Supplies & Services General	\$ 420.00		27/03/2015
Office Supplies	\$ 183.82		02/09/2014
Office Supplies	\$ 1,275.26		06/01/2015
Office Supplies	\$ 40.36		06/01/2015
Office Supplies	\$ 755.24		31/03/2015
Supplies & Services General	\$ 25.16		29/01/2015
Supplies & Services General	\$ 20.33		31/03/2015
Supplies & Services General	\$ 60.58		31/03/2015
Supplies & Services General	\$ 403.00		20/03/2015
Working Sessions & Meetings	\$ 512.57		15/04/2014
Working Sessions & Meetings	\$ 1,034.39		15/05/2014
Working Sessions & Meetings	\$ 111.27		22/12/2014
Working Sessions & Meetings	\$ 103.90		08/01/2015
Working Sessions & Meetings	\$ 398.16		20/03/2015
Working Sessions & Meetings	\$ 18,189.15		30/03/2015
Parking Permits	\$ 333.25		24/10/2014
Supplies & Services General	\$ 355.78		24/02/2015
Working Sessions & Meetings	\$ (274.26)		01/04/2014
Parking Permits	\$ 238.00		13/03/2015
Working Sessions & Meetings	\$ 285.18		31/03/2015
Working Sessions & Meetings	\$ 285.18		31/03/2015
Supplies & Services General	\$ 47.50		31/03/2015
Supplies & Services General	\$ 42.50		31/03/2015
Supplies & Services General	\$ 75.00		02/03/2015
Supplies & Services General	\$ 1.24		02/03/2015
Total:	\$ 25,379.77		

**Staff Area Supervisors for MMI Sat,
March 14 & Sunday March 15, 2015**

	Fri, March 13 (prep interview area)	Sat March 14 (hours worked)	Sun March 15 (hours worked)	
Diane	2	12	12	\$1,500.00
Gisele	2	11	12	\$1,440.00
Kimberly	2	11	11.5	\$1,410.00
Karen	2	10		\$660.00
Lisa	2	10		\$660.00
Jennifer	1	4.5	10	\$885.00
Jodi H	1.25	3.5	10.25	\$840.00
Abbie	1	10		\$615.00
JoAnn	2		11	\$720.00
Basia	1.5	10		\$660.00
				\$9,390.00

To maintain confidentiality of salaries of UME staff who worked OT on the MMI weekend; salaries paid are based on an average of \$30.00/hr for this report

Application Fees to MD Programs

University	Application Fee	Portion of fees that remain in MD Admissions
University of Alberta	\$75 current or former UofA students <u>or</u> \$125 students new to UofA	
University of British Columbia	\$115.25 for residents of BC with BC transcripts only <u>or</u> \$148.25 for residents of BC with any out of province transcripts <u>or</u> \$170.50 for residents outside of BC . And all applicants pay an additional \$50 upon submission of application.	100%
University of Calgary	\$150	\$50
University of Saskatchewan	\$125	\$125
University of Manitoba	\$90	
McGill University	\$144.37	\$40
Dalhousie University	\$70 and \$75 MMI Interview fee	\$75
Memorial University	\$151.50 application service fee to CaRMS and \$75 to Memorial University	\$75

Ontario Medical Schools

Ontario Medical Schools Application Service	\$220 application service fee to OMSAS and institutional fee for each ON medical school applied to	
McMaster University	\$125 institutional fee	\$65
Northern Ontario School of Medicine	\$85 institutional fee	\$85
University of Ottawa	\$100 institutional fee	\$75
Queens University	\$100 institutional fee	\$100
University of Toronto	\$110 institutional fee	\$110
University of Western Ontario	\$100 institutional fee	\$100

Sherbrooke	\$81 and \$125 MMI Interview fee*	125*
UMontreal	\$92 and \$125 MMI Interview fee*	125*
Laval	\$78.50 and \$125 MMI Interview fee*	125*

**Sherbrooke, UMontreal and Laval do a combined MMI Interview. If an applicant is selected for an interview at more than one school, they complete one MMI Interview and pay the \$125 MMI Interview fee one time.*

OUTLINE OF ISSUE

Agenda Title: **Proposal to Establish a Department of Critical Care Medicine and the Concurrent Termination of the Division of Critical Care Medicine, Faculty of Medicine and Dentistry**

Motion: THAT the GFC Academic Planning Committee recommend to General Faculties Council the establishment of a Department of Critical Care Medicine, as submitted by the Faculty of Medicine and Dentistry, and as set forth in Attachment 1, and the concurrent termination of the Division of Critical Care Medicine, to take effect July 1, 2016.

Item

Action Requested	<input type="checkbox"/> Approval <input checked="" type="checkbox"/> Recommendation <input type="checkbox"/> Discussion/Advice <input type="checkbox"/> Information
Proposed by	Richard Fedorak, Interim Dean, Faculty of Medicine and Dentistry
Presenter	David Zygun, Division Director Critical Care; Richard Fedorak, Interim Dean or Dennis Kunimoto Vice Dean Faculty Affairs, Faculty of Medicine and Dentistry
Subject	Proposed Establishment of a Department of Critical Care Medicine

Details

Responsibility	Provost and Vice-President (Academic)
The Purpose of the Proposal is (please be specific)	To transform the existing free standing Division of Critical Care Medicine into a Department of Critical Care Medicine. The Division currently operates much like a Department, with a director who sits on the Faculty Evaluation Committee (for evaluation of its own members) and on the Faculty's Chairs Committee. The Division has the responsibility for managing its own budget and teaching plan. We also recommend the current division director become chair of the department.
The Impact of the Proposal is	A resource-neutral move that both formalizes the <i>status quo</i> and allows the unit to respond to scholarly developments in the academic field. It will also enhance recruitment and retention to compete against other Departments of Critical Care in the country. It will also create effective governance structures without requiring additional costs.
Replaces/Revises (eg, policies, resolutions)	The department will replace the free standing Division of Critical Care Medicine.
Timeline/Implementation Date	July 1, 2016
Estimated Cost	Cost neutral
Sources of Funding	N/A
Notes	

Alignment/Compliance

Alignment with Guiding Documents	<Dare to Discover, Dare to Deliver, Comprehensive Institutional Plan, Institutional values, Other>
Compliance with Legislation, Policy and/or Procedure Relevant to the Proposal (please quote legislation and include identifying section numbers)	1. Post-Secondary Learning Act (PSLA): The <i>PSLA</i> gives GFC responsibility, subject to the authority of the Board of Governors, over academic affairs (Section 26(1)). Section 26(1)(o) provides that GFC may make recommendations to the Board of Governors on a number of matters including the budget and academic planning; Section 26(1)(l) provides that GFC may make recommendations to the Board of Governors on the establishment of Faculties, Schools, Departments, Chairs, and programs of study in the University in any subject that GFC

	<p>thinks fits.</p> <p>2. GFC Academic Planning Committee (APC) Terms of Reference/3. Mandate of the Committee:</p> <p>“APC is responsible for making recommendations to GFC and/or to the Board of Governors concerning policy matters and action matters with respect to the following: [...]”</p> <p>2. Units</p> <p>a. Subject to Article 32 of the Faculty Agreement, to recommend to GFC on the establishment and termination of Faculties, Departments, Schools and divisions, and on mergers involving Faculties, Departments or Schools. (Divisions are defined as academic units with authority over student programs. They may be budgetary units and may or may not be part of an existing Department.)”</p> <p>3. Board Learning and Discovery Committee (BLDC) Terms of Reference:</p> <p>“3. MANDATE OF THE COMMITTEE</p> <p>Except as provided in paragraph 4 hereof and in the Board’s General Committee Terms of Reference, the Committee shall, in accordance with the Committee’s responsibilities with powers granted under the <i>Post-Secondary Learning Act</i>, monitor, evaluate, advise and make decisions on behalf of the Board with respect to matters concerning the teaching and research affairs of the University, including proposals coming from the administration and from General Faculties Council (the “GFC”), and shall consider future educational expectations and challenges to be faced by the University. The Committee shall also include any other matter delegated to the Committee by the Board.</p> <p>Without limiting the generality of the foregoing the Committee shall: [...]</p> <p>l. review proposals and recommendations of GFC concerning the establishment, continuation and re-organization of faculties, schools, departments and make recommendations to the Board in respect thereof[.] [...]</p> <p>4. LIMITATIONS ON DELEGATION BY THE BOARD</p> <p>This general delegation of authority by the Board to the Committee shall be limited as set out in this paragraph. Notwithstanding the general delegation of authority to the Committee as set out in paragraph 3, the Board shall make all decisions with respect to:</p> <p>a. the establishment, continuation, reorganization or abolition of faculties, schools and departments”</p>
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Routing (Include meeting dates)

Participation:	Chairs Committee, Faculty of Medicine and Dentistry, October 14, 2015
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Item No. 5

<p>(parties who have seen the proposal and in what capacity)</p> <ul style="list-style-type: none"> • Those who have been informed • Those who have been consulted • Those who are actively participating 	<p>(For Consultation) Brygeda Renke , AASUA , January 25, 2016 (For Consultation)</p>
<p>Approval Route (Governance) (including meeting dates)</p>	<p>Faculty Council Medicine and Dentistry - November 17, 2015 GFC Academic Planning Committee - March 23, 2016 GFC Executive Committee – April 11, 2016 General Faculties Council - May 30, 2016 Board Learning and Discovery Committee - June 2, 2016 Board of Governors – June 17, 2016</p>
<p>Final Approver</p>	<p>Board of Governors</p>

Attachments (each to be numbered 1 - <>)

1. Attachment 1 (pages 1 – 29)– Briefing Note Academic Department of Critical Care
2. Attachment 2 (pages 1 – 4) – Chairs Presentation Critical Care Medicine (slides 1 – 21)
3. Attachment 3 (pages 1 – 3) – Recommendation of the Interim Dean, Dr. Richard Fedorak
3. Attachment 4 (pages 1 – 2) - DCCM Transition Brief Executive Summary
4. Attachment 5 (page 1) – Letter of Support from Dr. Shelley Duggan
5. Attachment 6 (page 1) – Letter of Support from Dr. Jonathan Davidow
6. Attachment 7 (pages 1-2) – Letter of Support from Dr. Michael Murphy

Prepared by: Dr. Richard Fedorak, Interim Dean, richard.fedorak@ualberta.ca
with assistance from Valerie Gaul, Executive Assistant to Dr. Fedorak,
valerie.gaul@ualberta.ca



Briefing Note

Title: Proposal for the establishment of an Academic Department of Critical Care Medicine in the Faculty of Medicine and Dentistry

Date: May 26, 2015

Version: 3.0

Prepared for: Richard N Fedorak, MD, FRCPC, FRCP (London), FRSC
Interim Dean, Faculty of Medicine and Dentistry, University of Alberta

Prepared by: David Zygun
Noel Gibney

Executive Summary

Goals

To strengthen the academic mission of the FoMD by removing organizational barriers to the further development of the academic critical care medicine.

Ensure the FoMD at the University of Alberta is competitive nationally and internationally in the field of academic critical care medicine by removing barriers to academic recruitment.

Acknowledge the progression of and increasing importance of academic critical care medicine as a distinct specialty within the health care system and align with organizational structure of health services organization such as Alberta Health Services who are, and will remain, major funders of academic critical care medicine.

To remove discrepancies in representation for both primary and secondarily appointed critical care medicine Faculty in important FoMD processes and committees such as FEC.

Background Critical Care Medicine is a rapidly developing and expanding discipline, which impacts almost every other area of healthcare. Critical Care Medicine now embodies a unique body of knowledge of the epidemiology, assessment, treatment and outcomes of critical illness and multiple organ failure and represents a significant and growing component of the provision and cost of hospitalized medicine.

The Division of Critical Care Medicine (DCCM) is one of the largest integrated academic and clinical units in Canada with 50 members, of whom 36 have their primary academic appointment in the DCCM (see appendix 1). The other 14 with primary appointments in other parent disciplines are valued members who provide full clinical and academic support to Critical Care. The DCCM has 7 primarily appointed GFT/Special Continuing Status (SCS) Faculty members and 6 GFT members secondarily appointed to Critical Care (individuals are not primarily appointed to critical care due to various financial and clinical issues). With these 13 members, the DCCM is larger than 7 Departments in the FoMD based on data provided in 2014. The Division was successful in recruiting 2 additional special continuing status Faculty this year to join the FoMD in 2015 and 2016. Further, two internal clinical academic colleagues have been recruited to become SCS Faculty members. Finally, the Division has a translational anaesthesiology based Intensivist researcher entering the Clinical Investigator Program and will join Faculty in 2018. This will mean the proposed Academic Department will have 16 members by 2018. The DCCM expects retirement of two clinical academic colleague (CAC) members by 2018. With Departmental status, these positions will be dedicated to academic Faculty. As such, there is potential for 18 GFT/SCS members by 2018.

Research activity within the DCCM has shown remarkable growth in the last 3 years. During this period, up to 2007, the majority of research within the DCCM was performed by the extensive effort of two Faculty members. Since 2007, recruitment of clinician scientists has led to substantial increases in academic productivity with close to 100 publications per year and over a \$1.4 annual grant funding. Academic Intensivists

have supported the growth of our educational program with extensive teaching efforts and financial support. The development of international research and clinical fellowships will further enhance the reputation of the FoMD externally.

Conclusions The transition of the current stand-alone Division of Critical Care Medicine to academic Department within FoMD will align the University of Alberta with progression of the academic specialty nationally and internationally, remove barriers to recruitment, remove internal discrepancies for Faculty appointed to critical care medicine, and facilitate the academic mission of the FoMD at the University of Alberta.

Purpose

The purpose of the transition of the Division of Critical Care Medicine to an Academic Department is four fold:

1. Strengthen the academic mission of the FoMD by removing organizational barriers to the further development of the academic critical care medicine
2. Ensure the FoMD at the University of Alberta is competitive nationally and internationally in the field of academic critical care medicine by removing barriers to academic recruitment
3. Acknowledge the progression of and increasing importance of academic critical care medicine as a distinct specialty within the health care system and align with organizational structure of health services organization such as Alberta Health Services who are, and will remain, major funders of academic critical care medicine
4. To remove discrepancies in representation for both primary and secondarily appointed critical care medicine Faculty in important FoMD processes and committees such as FEC

Background

History of Critical Care Medicine

The first post-operative neurosurgery recovery room was created at Johns Hopkins Hospital in the 1920's. During World War II, shock wards were established to resuscitate and care for soldiers injured in battle or undergoing surgery. Critical Care Medicine with the application of life support technology evolved from the response to a poliomyelitis epidemic in Copenhagen 60 years ago where the concept of positive pressure mechanical ventilation was developed and shown to improve patient survival. This demonstrated the potential to employ specialized skills originally developed by anaesthetists to support patients in the operating room, to provide life-sustaining support for patients with respiratory failure. Subsequently, cardiology demonstrated the value of coronary care units to improve the care of patients following acute myocardial infarction. The fledgling specialty of Critical Care Medicine grasped and integrated the rapidly developing technologies of patient monitoring and life support to improve the care of critically ill patients with multiple organ failure from a myriad of causes, while the dedicated intensivist, rather than multiple consulting specialists, coordinated patient care.

Unique Body of Knowledge

Critical Care Medicine now embodies a unique body of knowledge of the epidemiology, assessment, treatment and outcomes of critical illness and multiple organ failure. Premier international medical journals such as the New England Journal of Medicine, Journal of the American Medical Association (JAMA), The Lancet and the British Medical Journal maintain separate collections of articles dedicated to the care of the critically ill patient. There is now a significant number of international and national subspecialty journals entirely devoted to Critical Care Medicine, including some on more specialized

aspects of Critical Care Medicine, including neurocritical care, cardiovascular critical care, respiratory critical care, trauma and burn critical care, pediatric critical care, and critical care nursing. Critical Care Medicine long since evolved from a subspecialty of anesthesia concerned primarily with external means of ventilation to a distinct area of expertise, which through advances and innovation in research, has generated a unique body of knowledge focused on advanced life support technologies related to the support and treatment of critically ill patients characterized by multiple organ dysfunction and failure. There is ongoing work in the areas of advanced monitoring, clinical engineering, and translational medicine including work with biomarkers, genomics and metabolomics to enable us to better understand and treat a broad spectrum of critical illnesses in the future. Critical Care Medicine is a leader in the field of severe infectious disease and pandemic response.

Critical Care Medicine in Canada and at the University of Alberta

The first multisystem critical care units in Canada were developed in the late 1960's in Toronto, Edmonton and Winnipeg. A fellowship program in Critical Care Medicine developed in Edmonton by Dr. E.G. King in 1970, was one of the first of its kind and trained physicians from Canada and beyond, many of whom went on to develop critical care programs elsewhere in this country and around the world. Initially, Critical Care Medicine resided within Dr. King's academic home, the Division of Pulmonary Medicine. However, over time, it became clear that Critical Care Medicine had practitioners who had varied backgrounds in Anesthesia, Surgery, Emergency Medicine and other medical specialties.

In 1985, the Division of Critical Care Medicine was established under Dr. King as an Interdepartmental Division of the Faculty with the Divisional Director reporting jointly to the Dean and the Chairs of Medicine, Surgery and Anesthesia and attended with the chairs at the monthly meetings of the Dean with the Chairs. In 1987, Dr. Tom Noseworthy succeeded Dr. King as DCCM director and was followed by Dr. Richard Johnston in 1991.

In the mid 1980s, Dr. King and Dr. Tom Noseworthy were instrumental in the development of the Critical Care Medicine training programs of the Royal College of Physicians and Surgeons of Canada (RCPSC). In 1989, the University of Alberta Critical Care Residency Program was one of the first to be accredited by the Royal College of Physicians and Surgeons of Canada under its certification without examination program. Dr. Dat Chin has been a member of the Critical Care Medicine Nucleus Committee for many years and has had significant influence in the evolution of the specialty at the College. In 2006 the Royal College of Physicians and Surgeons of Canada commenced examination for FRCP(C) certification in Critical Care Medicine.

In 1995, following the regionalization of healthcare in Alberta, Capital Health included Critical Care as one of its Clinical Departments, allowing the Regional Program Clinical Director to control intensivist credentialing and provision of clinical privileges. Up to that point in time, credentialing had been the responsibility of the Chairs of Medicine, Surgery and Anesthesia. In 2000, the Regional Program Clinical Director for Critical Care,

Dr. Noel Gibney, was appointed as acting Divisional Director and subsequently, in 2002 was appointed as Divisional Director. This allowed the academic Division and the clinical Department to merge their vision, mission and goals. At this time, it was agreed within the Faculty of Medicine and Dentistry that it should be possible for faculty members to hold a primary appointment in the DCCM and secondary appointments, if desired, in other departments. This was important for intensivists to receive full credit for academic activities in critical care, which, prior to that time, were not always perceived to be fully valued by the traditional base specialties. The ability of academic intensivists to practice and function fully within the DCCM has been a major advance and has significantly facilitated the development of an active research program within the Division.

In 2012, Alberta Health Services created Strategic Clinical Networks (SCNs). Aligned with the Departmental structure of the health care system, critical care was one of the initial specialties to be recognized with network foundation. The goals of the SCNs include: to build a community of research support for the SCN from bench to bedside to community and back again, to establish and facilitate a provincial research network that attracts external funding and is doing research projects of relevance to the SCN, establish the process that ensures the right research is being conducted in a timely manner (sets research priorities and attracts adequate financial and infrastructure support to achieve those priorities with partners) and to collaborate with the AHN and other academic partners to identify interested researchers and link them to appropriate front-line teams to embed research and knowledge translation within the health care system. Major health services research competitions have been created for SCNs by Alberta Innovates: Health Solutions who is supported by Alberta Health to address the needs of Albertans within the health care system. These grants are only available within the network structure and are known as Partnerships for Research and Innovation in the Health System (PRIHS). Critical care investigators have been highly successful in the first two competitions.

Critical Care Medicine in Edmonton

The sickest and most unstable patients are cared for in our critical care units where highly trained inter-disciplinary teams and advanced life support technology and monitoring equipment are centralized. In addition to this premise, the traditional notion of caring for the critically ill patient within a dedicated location in the hospital has evolved and now integrated the concept of an “ICU without walls” where necessary expertise and support is taken to patients developing critical illness and at-risk for adverse outcomes. Consequently, outreach services are now recognized as a vital component of Critical Care.

Critical Care Units fulfill a number of vital functions within hospitals:

- Life-support of the devastatingly ill patient who would likely die without such care.

- Post-operative life-support of otherwise stable patients after major surgical procedures such as solid organ transplantation, major cancer resections, neurosurgical procedures and complex cardiac and vascular procedures.
- Peri-operative support of the previously ill patient after surgery.
- End-of-life management of the patient originally admitted with potentially reversible illness whose illness is now clearly fatal.
- Outreach services to seriously ill patients on all medical/surgical units and to distant health regions and hospitals via using teleconference and videoconference technology.

The General Systems Intensive Care Units (GSICUs) fulfill these roles for critically ill patients with overwhelming multisystem illnesses from a variety of causes including severe sepsis and septic shock, pneumonia, multiple trauma, catastrophic surgical illness and severe metabolic derangement caused by renal and liver failure. Management of these patients requires highly skilled team members using sophisticated physiological monitoring systems as well as various means of life support techniques including mechanical ventilation, renal replacement therapy, infusion of potent vasoactive medications for hemodynamic support and active cooling and rewarming techniques. The GSICUs provide these critical care services 24 hours/day, 365 days/year.

Critical Care units are becoming an increasing component of hospitalized care. A 2010 study demonstrated the need for intensive care continues to increase. Over 5 years in the US there has been a 4% decrease in the total number of hospital beds but an increase in ICU beds by 7%. Hospital non-ICU inpatient days increased by 5% while ICU inpatient days increased by 10%. Importantly, annual critical care medicine costs increased by 44%. (*Crit Care Med* 2010, **38**:65-71). It is expected. The ratio of ICU beds to hospital beds will continue to rise.

Critical Care in the Edmonton Zone incorporates the General Systems Intensive Care Units (GSICUs) at the Grey Nuns, Misericordia, Sturgeon, Royal Alexandra and University Hospitals which includes the critical care component of the Firefighters Burn Treatment Unit at UAH. These ICUs provide critical care to patients from Edmonton and region, Northern Alberta, Northeastern B.C. Northwest Territories and Western Nunavut. In addition, patients with hepatic failure requiring liver transplantation are referred from all over Alberta, Northeastern British Columbia, Saskatchewan and Manitoba. Over one third of patients are from outside the Edmonton Zone.

The Firefighters Burn Treatment Unit provides care to patients with severe thermal injuries from Northern Alberta, Northeastern B.C. Northwest Territories and Western Nunavut. Its mandate also includes the provision of care for patients with major soft tissue injuries, including those related to trauma and infection, as well as those undergoing major head and neck cancer resections involving microvascular reconstruction. It is progressively being recognized as the Prairie Province referral centre for patients with major burns and soft tissue injury.

The Neurosciences ICU at UAH, is jointly managed in partnership between Critical Care and Neurosciences. Members of the DCCM are the most responsible providers for all patients in the Neurosciences ICU. It provides care to patients with severe neurological injury from trauma and stroke. It also provides advanced life-support to patients who require sophisticated neurological monitoring and critical care following major neurosurgical procedures.

The Cardiovascular ICU (CVICU) at the Mazankowski Alberta Heart Institute is jointly managed by Cardiac Sciences and Critical Care. Intensivists in the CVICU have special interest and skills in the care of critically ill patients following complex cardiac surgery and those receiving extracorporeal membrane oxygenation heart and lung transplantation and ventricular assist devices.

Intensivists provide care in the following critical care units

Hospital	Unit	Beds
Grey Nuns Community Hospital	Intensive Care Unit	8
Misericordia Community Hospital	Intensive Care Unit	6 (+4HIU)
Royal Alexandra Hospital	Intensive Care Unit	25
Sturgeon Community Hospital	Intensive Care Unit	5 (+3HIU)
Mazankowski Alberta Heart Institute	Cardiovascular Intensive Care Unit	24
University of Alberta Hospital	Burn Unit (ICU component)	4
University of Alberta Hospital	Neurosciences Intensive Care Unit	10
University of Alberta Hospital	General Systems Intensive Care Unit	28

Overall, the GSICUs, Burn ICU, and Neurosciences ICU provide over 30,000 patient days of care to approximately 4900 patients each year, while the CVICU provides over 7500 patient days of care to approximately 1600 patients yearly.

Service Demographics of Edmonton Zone GSICUs (2014/15)

Unit	Funded Beds	Admissions	Patient days	APACHE II score	ICU Mortality	Mechanically ventilated in first 24 hrs
RAH ICU	25	1382	8061	20.5	12.4%	66.6%

UAH ICU	28	1424	9207	21.3	15.3%	59.0%
GNCH ICU	8	393	1922	21.3	13.0%	61.6%
MCH ICU	6 (+4HIU)	362	2285	21.6	15.7%	70.3%
SCH ICU	5 (+3HIU)	316	2146	20.0	10.8%	53.7%
Total	72	3877	23621			

February 1, 2014 – January 31, 2015

Collaboration with pediatric ICU

There is significant academic and clinical collaboration between Adult Critical Care Medicine and the Pediatric Intensive Care Unit at Stollery Children’s Hospital. Academic Grand Rounds include presenters from the pediatric academic program. Trainee Research Day is shared with the adult ICU, PICU and Neonatal ICU residents/fellows. There are a number of joint seminars for residents and fellows held on issues of common interest, including ethics and disclosure of adverse events. During the Influenza A H1N1 pandemic in 2009, the expertise of the PICU in collaboration was used to develop an adult provincial ECMO program to support critically ill adults with severe viral pneumonia. Critical Care played an integral and lead role for preparations for SARS and Ebola and represents the hospital response for both adults and children.

Donation and Transplantation

Critical Care plays a vital role in the recognition of potential donors for organ transplantation and in the management of critically ill patients prior to and following major organ transplant procedures. Because of the potential for conflict of interest, great care is taken to ensure that intensivists involved in the recognition of potential donors are not involved in the subsequent management of patients who have received organ transplants. Dr. Jim Kutsogiannis has made major contributions to the donation process as chair of the HOPE Advisory Committee and also as the individual who has led the Donation Following Cardiac Death process locally.

eCritical Clinical Information System

Alberta Health Services, including the clinical Department of Critical Care Medicine, Edmonton Zone and the Critical Care Strategic Clinical Network has implemented eCritical, the most comprehensive, multimodal and integrated data repository of patient-specific critical care clinical information in the nation, which will present real-time information in an intuitive fashion for optimal and timely patient-specific decision making, while also enabling the creation of timely unit, zonal and provincial reports for administrative, quality improvement, education and research purposes. The eCritical TRACER data warehouse represents the most in-depth source of patient critical care

data in the world and will strongly support the health services research, translational research and academic quality agenda of the Academic Department. This data warehouse is population based and by the end of 2015 encompass ALL adult patients admitted to a critical care bed in the entire province.

RAAPID North

RAAPID North and South provide coordination of all patient transports, especially critical care transports within and into Alberta. Critical Care Medicine has worked with RAAPID North to develop algorithms for patient transport from centres in Northern Alberta and other provinces to the ICUs.

STARS

Critical Care Medicine has significant involvement with the Shock Trauma Air Rescue Society (STARS). This agency provides mobile critical care using rotary air transport. STARS transports critically ill trauma victims directly from the scene of their injury as well as critically ill patients from hospitals within range of their helicopters. Dr. Gibney was a member of the board of directors of STARS until June 2011. Currently 4 intensivists (Drs. Brindley, Davidow, Hudson and Suen) fly as flight physicians. Dr. Darren Hudson is now the associate medical director responsible for critical care provision. This will facilitate the education of providers and research into critical care transport medicine. This relationship has enabled us to provide education and electives in transport medicine to our trainees.

DCCM Faculty Members

The DCCM has 50 members, of whom 36 have their primary academic appointment in the DCCM (see appendix 1). The other 14 with primary appointments in other parent disciplines are valued members who provide full clinical and academic support to Critical Care and, in addition, serve as “ambassadors” between Critical Care and their other disciplines. The DCCM is larger, in terms of members and Faculty, than the two current academic Departments of Critical Care Medicine (Calgary and Dalhousie).

The DCCM has 7 primarily appointed Faculty members (5 GFT and 2 special continuing appointments). These individuals are Dr. Sean Bagshaw, Dr. Peter Brindley, Dr. Dat Chin, Dr. Noel Gibney, Dr. Jim Kutsogiannis, Dr. Sean van Diepen, and Dr. David Zygun. In addition, the Division has six GFT members secondarily appointed to Critical Care. These members’ academic programs are focused on the critical care aspects of their specialties (individuals are not primarily appointed to Critical Care due to various financial and clinical issues). These individuals include: Dr. Dean Karvellas, an Intensivist/hepatologist with a special interest in the management of acute hepatic failure, intracranial pressure management in acute hepatic failure and hepatic transplantation; Dr. Rachel Khadaroo, a surgical intensivist with a basic science laboratory and translational research program focused on critically ill surgical patients; Dr. Ronald Brisebois, a surgical intensivist with a major surgical administrative role, traumatologist and liaison to the Canadian military; Dr. Sandy Widder, a surgical intensivist and trauma director whose academic program includes health services delivery, quality, acute surgery and trauma; Dr. Lawrence Cheung, an educator and program director for Respiriology who performs all his clinical service within Critical Care, and Dr. Ted Tredget, an international renown burn specialist with an academic program in all aspects of burn care.

With these 13 members, the DCCM is larger than 7 Departments in the FoMD based on data provided in 2014. Importantly, the Division is growing. Without funding from the FoMD or University, the Division was successful in recruiting 2 additional special continuing status Faculty this year. They will join the FoMD in 2015 and 2016. Further, at the suggestion of the Vice Dean, Faculty affairs with the previous Dean’s agreement as a mechanism of growing Faculty, two clinical academic colleagues with academic credentials to warrant (special continuing) Faculty status have agreed to become Faculty members at the Associate Professor level. Finally, the Division has a translational anesthesiology based Intensivist researcher entering the Clinical Investigator Program and will join Faculty in 2018. This will mean the proposed Academic Department will have 16 members by 2018. The Division expects retirement of two CAC members by 2018. With Departmental status, these positions will be dedicated to academic Faculty. As such, there is potential for 18 members by 2018.

DCCM Academic leadership

Position	Name
Director	Dr. David Zygun
Residency Training Program Director	Dr. Wendy Sligl
Research Director	Dr. Sean Bagshaw
Junior resident rotation coordinator RAH	Dr. Darren Markland
Junior resident rotation coordinator UAH	Dr. Adam Romanovsky

Education

Residency Training Program

The Division of Critical Care Medicine at the University of Alberta operates an Adult Critical Care Medicine training program. This program was recently internally surveyed in preparation of the external review by the Royal College of Physicians and Surgeons of Canada. It is two years in duration and is currently training six residents that have already completed primary specialty training in another program. In addition, the training program is also responsible for providing Critical Care exposure of two to three months duration to approximately 125 residents from the Department of Surgery, Medicine and its subspecialties, Emergency Medicine, Anesthesia, Neurosciences, Cardiovascular Surgery, Obstetrics and Gynecology and Family Medicine. Training currently occurs at either at the University of Alberta Hospital or the Royal Alexandra Hospital. Graduates from our training program are well qualified to work in any Critical Care environment and are sought after both regionally and nationally. Because of demographic shifts, the need for specialty trained critical care physicians is expected to grow over the next 10 years.

Since its inception, the Adult Critical Care residency training program has an educational philosophy that emphasizes clinical competence and excellence. It is centered on a core of 12 months of critical care training divided between both hospital sites and 12 months of relevant electives. These rotations give the resident a broad range of exposures to nearly the entire spectrum critical illnesses in adults.

Research and research methodologies are also an important and mandatory aspect of the resident's training. Each resident is expected to complete a research project as part of their training and present it at both our annual Resident Research Day and at national or international conferences. This has helped to facilitate many publications from our trainees. Dr. Sean Bagshaw, Dr. Jim Kutsogiannis, Dr. Michael Jacka, and Dr. David Zygun have mentored and supported residents and fellows research activities.

In addition to clinical exposure, the Division provides and all of our residents participate in a weekly academic half-day. This is a mandatory component of their training and all residents are relieved of their clinical responsibilities regardless of their rotation. The half-day starts with a basic and clinical physiology seminar series, then a didactic session on fundamentals of Critical Care Medicine including research, biomedical ethics, medical-legal aspects of medicine, and communication. This is followed by resident driven seminars on specific topics in Critical Care Medicine based on the objectives of training. The Faculty also provides a quarterly "boot camp" to prepare incoming rotating residents for their upcoming ICU rotation and daily didactic teaching sessions for rotating residents at the UAH site.

Residency Training Committee

The Residency Program Committee (RPC) approves the terms of reference for the Program Director and the Critical Care Residency Training Committee. The Program Director chairs the RPC, oversees the Divisional Educational program and reports to the

DCCM Divisional Director and Postgraduate Medical Education Associate Dean. The Program Director, with the assistance from the committee, plans, organizes and supervises the program.

The Program Director and RPC are responsible for the development and operation of the program according to the RCPSC general standards of accreditation and the specific standard of accreditation and specialty training requirements for residency programs in adult Critical Care Medicine. The RPC is also responsible for the selection, evaluation and promotion of the resident as well as receiving and reviewing resident appeals. It provides career planning, mentoring and counseling and assists with problems related to stress. The RPC also reviews the program on a regular basis including its educational components, resources and facilities. In addition, the RPC continuously reviews the teaching in the program, including the basic and clinical sciences, within the CanMEDS competencies using the assessment of teaching staff and the feedback of the trainees.

Drs. Clint Torok-Both, Wendy Sligl and Dat Chin are responsible for the creation and administration of the written and oral examinations. They also assist the program director in preparing and reviewing the various in-training evaluations including: weekly evaluations, 360 degree evaluations, crisis resource management evaluations, family communication checklist, telephone consultation evaluations, grand round evaluations, and patient presentation evaluations. Dr. Sean Bagshaw is responsible for assisting the program director in guiding the residents in their mandatory research requirement and act as a resource for the residents. Drs. Derek Townsend, and Peter Brindley are responsible for ICU grand rounds, and medical simulation events.

Several members of the division have close associations with community ICUs, other Canadian centres and several international programs (including Australia, the U.K and the Middle East). As such, our trainees have many opportunities for diverse clinical electives and exchanges. Regular journal clubs enable development of critical appraisal skills, and opportunities to teach enable our trainees to develop their skills as educators.

While the majority of our residents have originally completed training in one of the more traditional disciplines of Pulmonary Medicine, Anesthesia and General Surgery, we are increasingly seeing residents with backgrounds in other areas such as Emergency Medicine, Nephrology, Cardiology, Neurology and Otolaryngology commencing critical care residency training. Over the last decade we have trained a number of international fellows, primarily from Saudi Arabia.

As a result of the high quality research produced in the division, the training program is receiving research fellowship applications from high quality international applicants. The DCCM is supporting research fellowships for national and international trainees. These trainees have originated from Ontario and South America with one trainee completing his MSc (Epidemiology). One of the challenges facing the program is finding non-

Ministry of Health funding to support these trainees, which will further enhance our international reputation



Medical Simulation

Research has increasingly shown that most adverse patient outcomes and medical errors involve suboptimal communication, teamwork, and crisis management. Furthermore these factors are poorly addressed by traditional education. However, they are ideally suited to Medical Simulation. Over the last five years, Simulation has become a regular feature of training and ongoing quality assurance in our ICUs. Trainees now receive regular and mandatory simulation exposure followed by structured debriefing and feedback based upon validated scoring systems (some of which were developed by our faculty members). For a number of years Dr. Peter Brindley was the Medical lead for Patient Simulation for Capital Health and an advisor on simulation to the Canadian Patient Safety Institute and the Royal College of Physicians and Surgeons of Canada. The University of Alberta and the Alberta Health Services became national leaders in acute care simulation. The regional simulation program has grown enormously over five years and now provides several thousand hours of annual simulation-based education. This has included resident physicians in Critical Care Medicine, Emergency Medicine, General Surgery, Ophthalmology, Neurosurgery and Psychiatry and others. Importantly, however, it has also included Critical Care Nursing Recruits, Trauma Nurses, General Ward Nurses, Critical Care Nurses, Respiratory Therapists and the Rapid Response Team. We have also delivered courses throughout the province (including Grande Prairie, Red Deer, Calgary and Peace River) and hosted a national simulation conference. We have also contributed to a number of peer reviewed simulation publications, national and international presentations, and several large grants for the development and delivery of simulation education.

Resident Career Planning

The career goals and objectives of the resident are identified early, e.g. a career goal as a clinician or academic. The content of the two year training period is reviewed, especially the elective rotations and the need for additional training in specific areas. Once accepted into the program the resident's training is tailored according to their career plans. The following are considered: their primary specialty, prior experience, career plans and need to obtain certification in a primary specialty.

There are multiple opportunities to provide career guidance. Career planning is a standing item on the semi-annual review with the residents. The current and prospective employment market is discussed. Specific advice about search strategies and techniques for ensuring a successful job application are outlined. The Program Director also forwards any advertised opportunities throughout the training period. The program supports a resident who needs to complete an elective in another hospital as

part of a job application. Some residents have entered the program with a potential offer of employment from their “home” university/hospital. Their training is tailored according to the ICU to which they are returning. Each resident is allocated an intensivist mentor who also provides informal career guidance as well as general advice and personal support.

Research

The goal of an academic department is to provide an environment where translational research can flourish; that is, to create an infrastructure with talented individuals where discoveries at the laboratory bench can be moved to the clinical arena in a timely fashion and where puzzling questions or observations at the bedside can be tackled by clinician scientists.

Research activity within the DCCM has shown remarkable growth in the last 3 years. During this period, we believe our Division has achieved several noteworthy accomplishments. Up to 2007, the majority of research within the DCCM was performed by the extensive effort of Drs. Jim Kutsogiannis and Michael Jacka, whose interests have centered primarily on neurotrauma, organ donation and perioperative outcomes.

In 2007, the Division was successful in recruiting Dr. Sean Bagshaw, a clinician scientist to further stimulate and develop a core research infrastructure. Early following his appointment to the Division, Dr. Bagshaw was awarded a major Independent Investigator Award from the Alberta Heritage Foundation for Medical Research. Dr. Sean Bagshaw is now the Director of Research for the DCCM, and has been awarded a Tier II *Canada Research Chair in Critical Care Nephrology*. He is also cross-appointed to the School of Public Health and the Epidemiology Coordinating and Research (EPICORE) Centre.

Critical Care Nephrology is a recognized strength of the DCCM. Dr. Bagshaw is recognized as a leader, both nationally and internationally, in this field. In addition, Dr. Kutsogiannis and Dr. Gibney have recognized expertise and research interest in this field. This work is further supported by the presence in the DCCM of 4 intensivist-nephrologists, Dr. Curtis Johnston, Dr. Shelley Duggan, Dr. Darren Markland and Dr. Adam Romanovsky.

On a semi-annual basis, the DCCM has sponsored a state-of-the-art symposium focused on Acute Kidney Injury and Renal Support in Critical Illness, targeted towards clinicians, trainees and nurses. This symposium, supported by Alberta Innovates – Health Solutions, has attracted several notable internationally recognized experts in the field to speak and has been well attended.

Landmark Research

The DCCM has participated and been a major contributor to several recently published landmark clinical studies in critical care.

POISE Trial (*Lancet* 2008; 371:1839-47): This large multi-centre randomized trial of patients at risk for cardiac events, evaluated the effects of peri-operative beta-blockers. The key findings from this trial were a higher risk of stroke and death in those patients allocated to peri-operative beta-blocker therapy. This trial has significant translational impact on the management of these patients in the peri-operative period. We were one of the top recruiting centers for the POISE Trial.

LOVS Trial (*JAMA* 2008; 299:637-45): This multi-center randomized trial compared conventional low-tidal volume ventilation with an experimental “open-lung approach” to ventilation for critically ill patients with acute respiratory distress syndrome. This trial found no difference in all-cause mortality between the groups; however, the “open-lung” group has fewer episodes of refractory hypoxemia and use of rescue therapies.

NICE-SUGAR Trial (*New England Journal Medicine* 2009;360:1283-97): This trial, supported by the Canadian Critical Care Trials Group (CCCTG), evaluated two approaches to glycemic control in critically ill patients. The key finding of this trial that tight glycemic control is associated with harm, has certainly led to widespread changes in clinical practice. We were one of the top recruiting centers for the NICE-SUGAR Trial.

Critically ill patients with 2009 influenza A (pH1N1) in Canada (*JAMA* 2009; 302:1872-79): This was an investigator initiated observational study of patients with respiratory failure infected with pH1N1 and admitted to ICU. This was a national collaboration. The GSICU, GNH, RAH contributed to the phase I study and the GSICU contributed considerably to the phase II study.

PROTECT Trial (*New England Journal Medicine* 2011;364:1305-1314): This trial, also supported by the CCCTG, evaluate two regimens for deep venous thrombosis (DVT) prophylaxis in critically ill patients. The key finding of this trial was no difference in the incidence rate of DVT and similar bleeding episode rates; however, there were novel secondary findings to suggest low-molecular weight heparin reduce the rate of pulmonary embolism and heparin-induced thrombocytopenia. Again, the DCCM was a top recruiter for this trial.

Daily sedation interruption in mechanically ventilated critically ill patients cared for with a sedation protocol: a randomized controlled trial (*JAMA*. 2012 Nov 21;308(19):1985-92) Multicentre randomized controlled trial of 430 critically ill, mechanically ventilated adults conducted in 16 tertiary care medical and surgical ICUs of protocolized continuous opioid and/or benzodiazepine infusions or to protocolized sedation plus daily sedation interruption. Main outcomes were time to successful extubation. Secondary outcomes included duration of stay, doses of sedatives and opioids, unintentional device removal, delirium, and nurse and respiratory therapist clinical workload (on a 10-point visual analog scale [VAS]). Investigator: Jacka. Funding CIHR

ABLE Study (submitted for publication) - Age of Blood Evaluation Trial in the Resuscitation of Critically Ill Patients. This is a randomized trial of “fresh” (<7 days) vs.

standard issue packed red cell transfusion in critically ill patients. We recruited a significant number of patients. Investigators: Bagshaw. Funding: CIHR.

REALISTIC 80 Study (manuscript in preparation)- Realities, Expectations, and Attitudes to Life Support Technologies in Intensive Care for Octogenarians. This is an observational study focused on >80 year olds admitted to ICU – largely examining their experience in and following ICU. Investigators: Bagshaw, Kutsogiannis. Funding: CIHR.

ROSII Trial (manuscript in preparation)- A Randomized, Double-Blinded Controlled Trial Comparing High vs. Standard Dose Oseltamivir in Severe, Influenza Infection in ICU. This is a randomized comparison of standard vs. high-dose oseltamivir for treatment of critically ill patients with severe pH1N1 infection. Investigators: Bagshaw, Kutsogiannis. Funding: PHAC.

OSCILLATE Trial (N Engl J Med. 2013 Feb 28;368(9):795-805) – The Oscillation for ARDS Treated Early (OSCILLATE) Trial. This multi-center randomized trial of early oscillation compared with conventional lung-protective ventilation for critically ill patients with acute respiratory distress syndrome (ARDS). Investigators: Jacka, Bagshaw. Funding: CIHR.

ICU Frailty Study (CMAJ. 2014 Feb 4;186(2):E95-102) - A prospective multicentre observational study of frailty in critically illness. This is an observational study of all admissions aged>50 yrs. to the ICUs at the University of Alberta Hospital, Grey Nuns Hospital, and Misericordia Hospital (Edmonton) and Foothills Medical Centre, Peter Lougheed Hospital, and Rockyview General Hospital (Calgary) to objectively evaluate the prevalence of “frailty” in critically ill patients using the validated “Clinical Frailty Scale”. Investigators: Bagshaw, McDermid, Stelfox, Stollery, Rokosh, Majumdar, Rolfson, Tsuyuki. Funding: CIHR, CICF, UHF

Examples of DCCM Investigator Initiated:

SPARK Study (Trials. 2010 May 11;11:50)- A multi-center phase II randomized blinded controlled trial of the effect of furosemide in critically ill patients with early acute kidney injury. This is a randomized trial is a comparison of low dose furosemide infusion vs. placebo to maintain urine output in critically ill patients early acute kidney injury. The primary outcome is progression of kidney injury. Investigators: Bagshaw, Gibney. Funding: AHFMR.

TOP UP Trial - A Randomized Trial of Supplemental Parenteral Nutrition in Under and Over Weight Critically Ill Patients. Investigators: Kutsogiannis, Karvellas. Funding: RAH HF, CICF. This study was integral in the development of a subsequent phase 3, NIH funded study lead by Dr. D. Heyland.

Prophylactic perioperative sodium bicarbonate to prevent acute kidney injury following open heart surgery: a multicenter double-blinded randomized controlled trial (PLoS Med. 2013;10(4):e1001426) - This is a multi-center randomized trial of NaHCO₃ compared with saline for prevention of acute kidney injury in high-risk patients undergoing cardiac surgery with cardiopulmonary bypass. Investigators: Bagshaw. Funding: CICF.

Examples of DCCM Multi-Center Investigator Initiated:

STARRT-AKI Trial - Standard versus Accelerated initiation of Renal Replacement Therapy in Acute Kidney Injury (STARRT-AKI). This is a multi-centre pilot randomized trial of early vs. standard RRT initiation in critically ill patients with AKI has led to a multimillion Investigators: Bagshaw. Funding: CIHR, UHF and CIHR.

Research Collaboration

Members of the DCCM are actively collaborating with several well-recognized regional, national and international research groups on a variety of research themes including the following:

Canadian Critical Care Trials Group (CCCTG): Current studies include: OSCILLATE trial, REDOX trial, REALISTIC 80 study, ABLE trial, Influenza A pH1N1 study, and PRECISE trial.

Canadian Acute Kidney Injury (CANAKI) Study Group: This is an investigator-initiated collaborative of Canadian critical care and nephrology researchers, currently led by Dr. Bagshaw (U of A) and Dr. Wald (U of T), with a mutual interest in acute kidney injury and renal support in critically ill patients. The CANAKI Study Group is investigating a program of research centered on the ideal timing of when to initiated renal replacement therapy.

Rapid Response Systems (Medical Emergency Team/Rapid Response Team): In addition to several local investigator-initiated projects focused on RRS, the DCCM is also collaborating with well-established centers of excellence in Australia, United States and Sweden, evaluating the impact of RRS on the quality of care and outcomes for hospitalized patients.

Alberta Sepsis Network: Several members of the DCCM are participants in this provincial network of researchers at the University of Calgary and the University of Alberta and funded by Alberta Innovation – Health Solutions (Zygun, Kutsogiannis, Bagshaw, Sligl, Gibney).

Acute Dialysis Quality Initiative (ADQI): Members of the DCCM (Gibney, Bagshaw) have had an active ongoing role with ADQI since its inception in 2002, an internationally recognized and respected working group that has been a driving force in quality improvement and research in the field of Critical Care Nephrology.

Critical Care Strategic Clinical Network: As indicated previously, DCCM members are active in the core committee and scientific arm of the network. This has afforded the members of the network to participate and be successful in provincial funding through junior investigator funding competitions and PRIHS competitions (AI:HS).

Research Infrastructure

Currently, a dedicated on-site office with 5 research workstations supports research at the University of Alberta Hospital. The office employs a full-time office manager whose salary is supported by contributions from the DCCM intensivists. The office also employs four part-time research coordinators. The current funding structure for coordinators is based on cost-recovery with direct billing to investigators for coordinator activity. In addition, the University provide Human Resources and Finance/Accounting support for the research office. The research office at the Royal Alexandra Hospital currently employs up to four coordinators. The research office at the Grey Nuns Hospital is similarly structured, employing two part-time coordinators.

Research activity in the DCCM is also supported by a number of additional resources. The Minimal Data Set (MDS) database supplied data from 2002 to 2012, which routinely captured key demographic, diagnostic, clinical, and outcome data on individual admissions to all ICUs in the Edmonton zone. This database currently contains patient-level data on approximately 25,000 independent ICU admissions. This resource has proven to have numerous research applications. In addition, the DCCM has recently integrated a provincial bedside critical care-focused computer information system (eCritical). This system has a number of research applications including: patient screening, data capture and numerous primary study applications. The TRACER data warehouse is the most comprehensive critical care data warehouse available to health services researchers in the world.

Trainee Supervision

In addition, the DCCM, largely through the efforts of Drs. Bagshaw, Zygun, Brindley, Sligl, and Kutsogiannis is now supervising the research activity of several trainees, including medical students, post-graduate residents, graduate students and international post-graduate fellows. The results of all of these studies (except those still ongoing) have been either presented at scientific meetings or published in peer-reviewed journals. The DCCM accepted its first international research fellow (Brazil) in September and October 2010.

Research Activity by Trainees (2007-2015)

Recent Trainees Supervised:

M. Douma, Nurse Practitioner trainee, University of Toronto. Project: Resuscitation following penetrating abdominal and pelvic trauma

Dr. L Remington, Infectious Disease resident, University of Alberta. Project: Community Acquired Pneumonia

Dr. S. Turvey, Infectious Disease resident, University of Alberta. Project: Survival of HIV-infected Critically Ill Patients in the Era of Highly Active Antiretroviral Therapy

Dr. A. McFarlane, Internal Medicine Resident, University of Alberta.

Project: Hospitalized Influenza Patients during 2013-2014; a Comparison of ICU and Ward Treated Patients including Antimicrobial Therapy, Adverse Events, and Outcomes

Dr. T. Dragon, Medical Microbiology resident, University of Alberta. Project: : Nosocomial gram-negative bacteremia in intensive care: epidemiology, antimicrobial susceptibilities and outcomes.

Dr. L. Azevedo, International Research Fellow, University of Sao Paulo. Project: Incidence and long-term outcomes of critically ill adult patients with moderate-to-severe diabetic ketoacidosis: retrospective matched cohort study.

Dr. P. Fidalgo, International Research Fellow, Department of Nephrology, Hospital Fernando Fonseca. Project: Association between transient acute kidney injury and morbidity and mortality after lung transplantation: a retrospective cohort study.

Dr. F. de Sousa Cardoso, Hospital Fernando Fonseca. Project: Respiratory rate at intensive care unit discharge after liver transplant is an independent risk factor for intensive care unit readmission within the same hospital stay: a nested case-control study.

Dr. Ilana Kopolovic, Internal Medicine Resident, University of Alberta. Project: Kidney Outcomes in Patients Undergoing Surgical Correction of Abdominal Aortic Aneurysms.

Dr. Wei Wang, Cardiac Surgery Resident, University of Alberta. Project: Post-Cardiac Surgery Acute Kidney Injury in Octogenarians.

Dr. Ivens Augusto de Souza, Post-Graduate Fellow, Sirio Libanes Hospital, University of Sao Paulo, Brazil. Project: Fluid Balance in Critical Illness: Impact of Acute Kidney Injury on Outcome.

Dr. L. Asadi, Infectious Diseases Resident, University of Alberta. Project: Macrolide-based regimens and mortality in hospitalized patients with community-acquired pneumonia: a systematic review and meta-analysis. Dr. Asadi received the Abbott Abstract Award as well as the John Embil Award for excellence in infectious diseases research by a trainee at the Association of Medical Microbiology and Infectious Diseases Annual Meeting, Quebec City, QC, April 2013

Dr. Adam Romanovsky, Critical Care Medicine Fellow, University of Alberta. Project: Rate of correction of hyponatremia post liver transplantation and possible consequences of a rapid rise in serum sodium.

Dr. Heidi Choi, Internal Medicine Resident, University of Alberta. Project: Incidence and outcomes in critically ill patients admitted with diabetic ketoacidosis.

Dr. Dominic Carney, Critical Care Medicine Fellow, University of Alberta. Project: Outcomes of patients with Usual Interstitial Pneumonia admitted to the intensive care unit.

Dr. Constantine Karvellas, Graduate Student, Divisions of Critical Care Medicine and Gastroenterology, University of Alberta. Project: Graduate Student, Divisions of Critical Care Medicine and Gastroenterology, University of Alberta. Project: Perioperative prognostication in liver transplantation.

Dr. Paul Engels, Critical Care Medicine Fellow, University of Alberta. Project: Pleth Variability Index in Critical Care Trauma Patients. Funding: Masimo Inc.

Ambica Parmar, Summer Student, Undergraduate, University of Alberta. Project: Medical emergency team and end-of-life care. Funding: Health Quality Council of Alberta Scholarship and Alberta Heritage Foundation for Medical Research/Alberta Innovates – Health Solutions Summer Studentship.

Dr. Kris Chan, Internal Medicine Resident, University of Alberta. Project: Clinical outcomes and prognostic factors in patients with acute myelogenous leukemia (AML) admitted to the intensive care unit: a case-control study.

Dr. Amanda Roze des Ordons, Anesthesiology Resident, University of Alberta. Project: Clinical outcomes and prognostic factors in patients with acute myelogenous leukemia (AML) admitted to the intensive care unit: a case-control study.

Dr. Hussein Kanji, Emergency Medicine Resident, University of Alberta. Project: Relative Difference between pre-operative and cardiopulmonary bypass mean arterial pressures is independently associated with cardiac surgery-associated acute kidney injury. Funding: Edmonton Civic Employees Grant.

Dr. Holly Hoang, Infectious Diseases Resident, University of Alberta. Project: Macrolide use in the treatment of critically ill patients with pneumonia: incidence, correlates, timing, and outcomes. Dr. Hoang won 1st Prize for Subspecialty Resident Oral Presentation, Department of Medicine Research Day

Dr. Luc Benoit, Internal Medicine Resident, University of Alberta. Project: Tremor due to Vancomycin Therapy: A Case Report and Literature Review.

Dr. Joshua Landy, Internal Medicine Resident, University of Alberta. Project: Gonococcal Septic Shock, Acute Respiratory Distress Syndrome, and Multisystem Organ Failure: A Case Report.

Dr. Constantine Karvellas, Critical Care Fellow, A case-control study of single-pass albumin dialysis for acetaminophen-induced acute liver failure.

Dr. Aidan Cunniffe, Family Medicine/Emergency Medicine Resident, University of Alberta. Project: members of critically ill patients: a feasibility study.

Thesis Supervision, University of Alberta:

Dr. K. Macala,

Dr O. Rewa,

MSc (Epi): Acute Kidney Injury. Supervisor: S. Bagshaw

Dr Yahya Khormi, Neurosurgical Resident, University of Alberta. Master's Thesis: Compliance with brain trauma foundation guidelines for intracranial pressure monitoring in severe traumatic brain injury and its effect on outcome: A population based study. Supervisor: D. Zygun

Dominique Michaud R.N. Assessment of 4% trisodium citrate as compared to saline or diluted heparin solution to ensure patency of central venous catheters in critically ill patients in the intensive care unit. Successfully completed MSc Nursing, The University of Alberta, 2002. Co-Supervisor: D.J. Kutsogiannis

Dr. Jun Gao, Biostatistician, Health Canada. Comparison of three methods of correlated survival analysis in a randomized trial of continuous renal replacement therapy. Successfully completed MSc Biostatistics, The University of Alberta, 2004. Co-Supervisor: D.J. Kutsogiannis.

Mrs. Cathy Alberda. MSc Nutritionist, The Royal Alexandra Hospital. Probiotic Therapy in Critically Ill Enterally Fed Patients. Successfully completed MSc Nutrition, The University of Alberta, 2005. Co-Supervisor: D.J. Kutsogiannis.

Dr. Gonzalo G. Guerra. Pediatric Intensivist, The University of Alberta. Safe Administration of Milrinone Infusion. Successfully completed MSc. Epidemiology, The University of Alberta June 6, 2011. Supervisor: Dr. D.J. Kutsogiannis.

Dr. Sayf Gazala. Trainee, General Surgery, The University of Alberta. Quality of Life after video assisted thoracoscopic surgery (VATS) anatomical lung resection for lung cancer. Completed first of two year MSc Clinical Epidemiology, the University of Alberta. Supervisor: Dr. D.J. Kutsogiannis.

Research Productivity

The academic productivity of the proposed Department has increased steadily. The most recent 2 years are included as Appendix 2. In 2013, 79 unique publications were documented by Divisional members. This increased to 94 in 2014.

Financial Support

In addition since 2009, research activity in our Division has been successful in securing funding for the following (mostly peer-reviewed) grant applications: *Canadian Institutes for Health Research, Alberta Innovates: Health Solutions Alberta Heritage Fund for Medical Research), Canadian Intensive Care Foundation, Royal Alexandra Hospital Foundation, University of Alberta Hospital Foundation, Rick Hansen Foundation Man in Motion, Physician Services Incorporated, Children's Hospital of Eastern Ontario Research Institute, Royal Alexandra Hospital Nursing Research Fund, Transplant Fund Value Added, Canadian Blood Services, Edmonton Civic Employees Charitable Assistance Fund, Women and Children's Health Research Institute Innovation Grant, Centre for Excellence for Gastrointestinal Inflammation and Immunity Research, and Royal Alexandra Hospital Nursing Research Fund.* Annual grant funding has increased from \$443,129 in 2013 to \$1,454,231. Examples of funding success are identified in Appendix 2.

The educational program and research office is supported by a voluntary tithe on clinical earnings of intensivists. The members contribute a total of \$245,400 annually. This has increased by \$10000 from 2013 due to efforts of the Research Director, Program Director, and Divisional director.

The FoMD provides funding for 4 GFT academic rank-based salaries (Zygun, Brindley, Chin, Gibney) while the fifth GFT salary is provided in combination with Canada Research Chair (Bagshaw). Alberta Innovates: Health solutions support Drs. Zygun and Bagshaw. All GFT positions are cost shared with Alberta Health Services. In addition, the DCCM shares an Administrative Professional Officer, Jacqueline Jubinville, with the Department of Anesthesiology and Pain Medicine. The Faculty of Medicine and Dentistry provides stipends to the Residency Training Program Director and to the clinical faculty members who are actively involved in teaching. In addition, the FoMD provides a 0.5 FTE administrative assistant to the Director. This assistant along with the 0.5 FTE provided by the Post Graduate Medical Education Office forms a 1.0 FTE administrative assistant for the entire educational program. The Division also utilizes the administrative support provided to the Zone Clinical Department Head and Senior Medical Director by Alberta Health Services as the clinical and academic programs are intimately linked in critical care. (Residents, rotating and critical care, provide tier 1 coverage in the zone ICUs).

The majority of funding required for resident education and research infrastructure is obtained from the faculty members through the aforementioned contributions.

Future Directions

Academic activity in the DCCM has increased considerably in the past years – highlighting a healthy balance between local investigator-initiated studies and educational programs, provincial collaborative efforts, nationally collaborative studies and Participation in the Critical Care Royal College Critical Care subcommittee, along with internationally collaborative work and industry partnership. Members are strongly supportive of dedicated future recruitment aimed to attract academic intensivists that will be facilitated by Academic Department status. All members support the academic mission of the combined AHS Clinical Department of Critical Care Medicine and proposed Academic Department of Critical Care Medicine, FoMD, University of Alberta. The overarching goal for the proposed academic Department of Critical Care Medicine is to improve the lives and care of those individuals affected by critical illness through improvements in health services delivery, translational research, clinical research, epidemiological research, and all levels of physician and allied health care provider education.

Health Services Research/Quality/Patient Safety

Health Services Research and specifically patient safety and quality improvement are concepts, which are deeply embedded in the culture of Critical Care Medicine. This is likely due to the combination of severity of illness of patients combined with the use of multiple high risk medications and sophisticated life support technologies. In collaboration with the Critical Care Strategic Clinical Network and eCritical, we are positioned to become international leaders in health services research for critical care medicine. We have also initiated an international research fellowship program, with the aim of attracting foreign fellows to contribute to and complete research training within the DCCM. Despite our recent success we believe that the research activity of our Division possesses huge potential to be international leaders. Our vision for the near future largely encompasses the successful recruitment of additional clinician scientists. The TRACER data warehouse will provide an unparalleled resource to facilitate health services, quality and patient safety research. In addition to the work Dr. Bagshaw has accomplished in the fields of critical care nephrology, medical emergency teams, and critical care capacity, our two new special continuing status recruits have strong expertise in the areas of quality and health services research. The successful recruitment of a surgical intensivist with graduate training in academic quality and patient safety will further this quality research objective. Our second recruit joining the FoMD in 2016 after completion of his PhD in Epidemiology already has had success in grant and publications in health services research and critical care

Translational Research

The proposed academic Department will continue to strongly support the FoMD Departments of Medicine, Surgery, and Anesthesia Faculty members who possess translational research programs. Currently, Dr. Rachel Khadaroo maintains a laboratory in the Department of Surgery. Due to the challenges of maintaining an acute surgery and intensive care practice Dr. Khadaroo looked for partnerships to maintain y=her

laboratory productivity. She has taken on a major mentorship role for an excellent Anesthesia based Critical Care trainee and with the strong support of Critical Care, Surgery and Anaesthesia, she has entered the CIP program. The Division has committed to recruit this individual to the proposed Academic Department of Critical Care Medicine upon successful completion of her PhD in the CIP program. She will primarily work in Critical Care but there is agreement she will share the laboratory with Dr. Khadaroo. We expect such collaborations to continue to expand with the progression to Academic Department status.

Clinical and Epidemiological Research

The current strengths of the Division in Critical Care Nephrology, Critical Care Epidemiology and clinical research will continue to grow with subsequent recruitment of academic intensivists. With the recruitment of Drs. Dean Karvellas, David Zygum, Sean van Diepen, there is planned increasing academic productivity in subspecialty Critical Care. The fields of focus and strength will be critical care hepatology (including transplant), Neurocritical Care, and Cardiovascular Critical Care. It is expected the academic Department of Critical Care Medicine will be international leaders in these burgeoning Critical Care subspecialties.

Education

Our first goal will be to maintain our excellent RCPSC critical care training program, with expected successful external review in 2017. We have also initiated an international research fellowship program, with the aim of attracting foreign fellows to contribute to and complete research training within the DCCM. We have had three international research fellows in the past two years. We expect the available expertise and resources within the proposed academic Department will increasingly attract these trainees and bolster academic productivity. Significant efforts are underway to develop subspecialty training programs. The fields of neurocritical care and cardiovascular critical care are now recognized subspecialties within critical care recognized by national and international critical care societies. A Cardiovascular Clinical Critical Care fellowship is under development. Two Faculty are now certified neurointensivists as a requirement for the development of an internationally recognized neurocritical fellowship program. The DCCM has made substantial improvements in graduate student supervision over the last two years. The DCCM has gone from two to six Faculty registered to supervise graduate students in the School of Public Health or Medical Science. A concomitant increase in graduate students is only expected to continue with the upcoming recruitment. This will further enhance our academic productivity. We will continue to strongly support supervision of post graduate trainees in Medicine, Surgery, Anaesthesia, and Emergency medicine in their research projects.

Leadership

The members of the DCCM will continue to take leadership roles in the development of Critical Care Medicine in Canada and in our health care system to facilitate the academic

mission of the FoMD. The DCCM was one of the first interdepartmental divisions of Critical Care Medicine and the first stand alone Division of a Faculty of Medicine in the country. Graduates of the residency training program have gone on to currently occupy major academic positions elsewhere in Canada and internationally. The DCCM is increasingly being recognized as a leader in critical care research. The members of the DCCM occupy a number of important leadership positions nationally, within the province and locally. Members of the DCCM play a significant role in many areas within the Faculty of Medicine and Dentistry, Alberta Health Services, Covenant Health and other organizations. Members are also on the executive of the Canadian Critical Care Society and participate actively in the Royal College of Physician and Surgeons Subspecialty (Critical Care) committee.

Financial Considerations

The majority of intensivists are remunerated on a fee for service basis by billing the Alberta Health Care Insurance Plan, which has a separate set of critical care fee codes. In addition, intensivists receive specialist on-call payments from AHS. One intensivist is a member of the Department of Medicine Academic Alternate Practice Plan (AARP) and provides “shadow billings” to that department. Five intensivists have academic geographic appointments within the DCCM and receive academic rank based salaries, all of which are cost shared with AHS. The ICU directors receive a stipend for medical leadership from AHS Medical Affairs. The DCCM first submitted a proposal for a clinical alternate funding plan (AFP) to Capital Health in 2004, which was not supported. Subsequently, efforts were combined with the Academic Department of Critical Care Medicine in Calgary. Unfortunately, despite strong support by both University’s Critical Care Medicine Faculty and the AMA, Alberta Health suspended negotiations with Critical Care Medicine after an initial contract offer was provided by Alberta Health as they planned a major reassessment of the current ARPs in medicine and pediatrics. Since then, the DCCM has participated in efforts to develop and negotiate both AARPs and AFPs within the provincial academic framework. Patterns of work and challenges to academic productivity and measurement are similar to those in the neonatal and Pediatric Critical Care fields and as such negotiations will require. Discussions are ongoing to develop either a clinical AFP or AARP. The fee for service schedule for Critical Care Medicine in Alberta is highly competitive and as such we have had success in recruitment. However, these payments are for clinical work and a stable funding mechanism for academic intensivists is required. This is not an issue isolated to Critical Care Medicine but generalized to all non-ARP Departments. This is not viewed as a barrier to progression to Departmental status but rather a risk to the FoMD generally that we share regardless of academic status.

Currently, the Division does not require additional resources for the transition to Academic Department status. We do request the APO shared with Anaesthesia formally report to both the Chair of Anaesthesia and proposed Chair of Critical Care Medicine. The current APO reports that at times over 50% of her time are spent on the growing academic activity within the Division of Critical Care Medicine. Recognition of her efforts away from Anesthesia and in Critical Care through this minor governance structure

change represents current practice and not a substantial change. The relationship of the current Division with the Department of Anaesthesia is strong and will do not recommend substantial changes to current practice. We will be co-located on the second floor of CSB which will further facilitate the ability of the APO to cross cover these Departments.

Conclusions

Critical Care Medicine is a rapidly developing and expanding discipline, which impacts almost every other area of healthcare. The DCCM Faculty members have created a highly regarded reputation through their clinical care, research, teaching and leadership activities nationally and internationally. For a young discipline, the DCCM has carried a larger clinical, educational and research than might be expected. Similarly, its members have provided invaluable leadership within the Faculty of Medicine and Dentistry, Alberta Health Services and beyond. Although Critical Care Medicine has been a free standing Division within the Faculty of Medicine and Dentistry, creation of a full academic Department of Critical Care Medicine would ensure the appropriate academic profile for the discipline at the University of Alberta. In this respect, many inside and outside the Faculty of Medicine and Dentistry, including granting agencies, do not understand the concept of a free standing academic division within the Faculty. Creation of a full academic Department of Critical Care Medicine would provide clarity. It would also provide consistency with the Clinical Departmental status of Critical Care within Alberta Health Services, Edmonton Zone and with the Departments of Critical Care at the Faculty of Medicine at the University of Calgary and Dalhousie University, the former with whom, we have significant academic contacts in the Alberta Sepsis Network but even more so through the Critical Care Strategic Clinical Network of Alberta Health Services and with whom we are partners in the province-wide Critical Care Clinical Information System.

The Division of Critical Care Medicine does not consume a large proportion of resources within the FoMD due to its partnership with the health care system. Significant resources are not required for the transition. The advancement of Critical Care Medicine to a full academic Department would further elevate the profile of the discipline externally for recruitment. This would improve the attractiveness of Critical Care Medicine as we seek to further to advance the academic mission of the FoMD.

Appendix 1. Membership of the Proposed Department of Critical Care Medicine

Attached

Appendix 2. Research Productivity

Attached

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February 22, 2016

Dr. Steven Dew
Provost & VP Academic
2-40 South Academic Building

Dear Dr. Dew,

Re: Transition of the Division of Critical Care Medicine to the Department of Critical Care Medicine in the Faculty of Medicine & Dentistry.

I'm writing to provide my recommendation for the establishment of the Department of Critical Care Medicine in the Faculty of Medicine & Dentistry.

Internal Faculty approvals have been obtained at the following stages:

- Faculty of Medicine & Dentistry Dean's Executive Committee approved March 9, 2015
- Faculty of Medicine & Dentistry Chair's Committee approved October 7, 2015
- Faculty of Medicine & Dentistry Faculty Council approved November 17, 2015

Critical Care Medicine is undergoing a fundamental change across Canada. Academic Health Science Centers are being challenged to address the rising demand for critical care medicine services and the education of new generations of Critical Care Medicine physicians and related healthcare providers. In addition, we are now asking Critical Care Medicine to standardize care and technologies across multiple hospital sites, optimize Intensive Care Unit integration and in-patient care, and participate in quality assurance, cost control, research and fundraising initiatives.

In order for Critical Care Medicine to meet these objectives, and to advance its long term growth and mission, I believe it must transition from a Division into a free standing Department of Critical Care Medicine within the Faculty of Medicine & Dentistry.

Currently, the Division of Critical Care Medicine in the Faculty of Medicine & Dentistry is one of the largest academic and clinical Critical Care units in Canada with 50 members, of whom 36 have primary academic appointments in Critical Care (5 GFT Faculty, 2 Special Continuing Academic Faculty and the remainder Clinical Academic Colleagues). The other 14 have their primary appointments in other medical subspecialties yet provide clinical and academic support to Critical Care Medicine. In addition, the Division is recruiting 2 Special Continuing Faculty that will join in 2016 and 2018.

Education

Critical Care Medicine runs a fully accredited Royal College of Physician and Surgeons of Canada, Critical Care Medicine Certification Program. There are currently 6 Residents in this program. In addition, over 115

Residents from Medicine, Surgery, Pediatrics, Anesthesia and Emergency Medicine rotate through the Intensive Care Units across Edmonton as part of their training programs and. With Department status, Critical Care Medicine will be able to enhance Undergraduate Medical Education teaching and increase the number of Graduate students and Research Fellowships.

Research

In 2014 Critical Care Medicine had over academic 80 publications and over \$3 million in grant funding, including 3 CIHR grants, as primary or principle investigator status. Between 2007 and 2015 there were 26 trainee supervised research projects and 8 graduate students completed their thesis. Since 2007, Critical Care Medicine has participated in 11 international multi-center landmark clinical trials, each published in highest impact journals. With Department status, Critical Care Medicine will be able to enhance and expand their research activities through recruitment of additional GFT faculty.

Clinical Care

Currently Critical Care Medicine incorporates the eight Intensive Care Units across the city (Grey Nuns Community Hospital, Misericordia Community Hospital, Royal Alexandra Hospital, Sturgeon Community Hospital, Mazankowski Alberta Heart Institute, University of Alberta Hospital Burn Unit, University of Alberta Hospital Neurosciences Intensive Care Unit and University of Alberta General Systems Intensive Care Unit). This represents 117 intensive care unit beds providing care to Edmonton and Northern Canada and in total providing over 30,000 patient days of care to approximately 5,000 patients each year. Through this clinical care activity there is tremendous opportunity for additional research, education and quality initiatives.

Fundraising

Critical Care Medicine, within the Faculty of Medicine & Dentistry, has tremendous opportunity and prospects for fundraising. It's important to note that members of the Critical Care Medicine Division currently, through their internal tithing process, support the education and research mission of the Division to the extent of approximately \$500,000 per year.

In summary, transition of Critical Care Medicine into an academic department of Critical Care Medicine, Faculty of Medicine & Dentistry, will provide the following advantages:

1. It will strengthen the academic mission of the Faculty of Medicine & Dentistry by removing any organizational barriers to future educational, research and fundraising development within Critical Care Medicine.
2. It will ensure that the Faculty of Medicine is competitive nationally and internationally in the field of Critical Care Medicine by removing any barriers to academic recruitment. Academic Critical Care Medicine Faculty do not want to be recruited into a division and to be competitive we must form a department.
3. Acknowledge the progression and increasing importance of Critical Care Medicine as a distinct specialty within the Royal College of Physicians and Surgeons of Canada and Alberta Health Services.

In support of this application I have attached the following items:

1. Briefing note dated February 23, 2015 by Dr. David Zygun and Dr. Noel Gibney entitled "Proposal for the Establishment of an Academic Department of Critical Care Medicine in the Faculty of Medicine & Dentistry.
2. A PowerPoint presentation entitled "Critical Care Medicine: The Future" prepared by Dr. David Zygun.

3. Letters of support from existing departments within the Faculty of Medicine & Dentistry:
 - a. Chair, Anesthesia, Faculty of Medicine & Dentistry, University of Alberta, Dr. Michael Murphy
 - b. Site Chief of Critical Care, Royal Alexandra Hospital, Dr. Jonathan Davidow
 - c. Site Chief Intensive Care Unit, Grey Nuns Community Hospital, Dr. Shelley Duggan

Sincerely,



Richard N. Fedorak, MD, FRCPC, FRCP (London), FRSC
Interim Dean, Faculty of Medicine & Dentistry
University of Alberta

cc: Dennis Kunimoto, Professor, Vice Dean – Faculty Affairs, Faculty of Medicine & Dentistry
David Zygun, Professor and Director, Division Critical Care Medicine
Noel Gibney, Professor, Division Critical Care Medicine

RF/ti

Academic Critical Care Medicine

University of Alberta

Attachment 2 – Slide 1 of 21

THE FUTURE
IS EXCITING

Attachment 2 – Slide 2 of 21

Established Specialty

- Critical Care Medicine now embodies a **unique body of knowledge** of the epidemiology, assessment, treatment and outcomes of critical illness and multiple organ failure
- Patients admitted to the ICUs are the healthcare system's **sickest, most complex and expensive patients** to care for (0.66% of GDP). The intensive care unit and intermediate care unit services have been found to be the highest cost among all categories of daily hospital services. Approximately **\$286 million** is spent annually on the provision of critical care services by Alberta Health Services (~**1.5% of annual provincial health expenditures**).

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Established Specialty

- The need for intensive care continues to increase. Over 5 years in the US:
 - 4% decrease in the total number of hospital beds
 - ICU beds increased by 7%
 - Hospital non-ICU inpatient days increased by 5%
 - ICU inpatient days increased by 10%.
 - Annual critical care medicine costs increased by 44%
 - The proportion of hospital costs and national health expenditures allocated to critical care medicine decreased by 1.6% and 1.8
 - The ratio of ICU beds to hospital beds will continue to rise

Crit Care Med 2010, 38:65-71

Attachment 2 – Slide 4 of 21

Established Specialty

- Post-operative neurosurgery recovery room was created at Johns Hopkins Hospital in the 1920's
- During World War II, shock wards were established to resuscitate and care for soldiers injured in battle or undergoing surgery
- Critical Care Medicine with the application of life support technology evolved from the response to a poliomyelitis epidemic in Copenhagen 60 years ago

Attachment 2 – Slide 5 of 21

Development in Edmonton

- **First multisystem critical care units in Canada** were developed in the late 1960's in Toronto, Edmonton and Winnipeg
- A fellowship program in Critical Care Medicine developed in Edmonton by **Dr. E.G. King**
- In 1985, the Division of Critical Care Medicine was established under Dr. King as an Interdepartmental Division
- In 1987, Dr. Tom Noseworthy succeeded Dr. King as DCCM director and was followed by Dr. Richard Johnston in 1991.
- In the mid 1980s, **Dr. King and Dr. Tom Noseworthy were instrumental in the development of the Critical Care Medicine training programs of the Royal College of Physicians and Surgeons of Canada (RCSC).**
- In 1989, the University of Alberta Critical Care Residency Program was **one of the first to be accredited** by the Royal College of Physicians and Surgeons of Canada

Attachment 2 – Slide 6 of 21

Development in Edmonton

- In 1995, following the regionalization of healthcare in Alberta, Capital Health (now AHS) included Critical Care as one of its **Clinical Departments**, with the Regional Program Clinical Director (now Zone Clinical Department Head) responsible for controlling intensivist credentialing and provision of clinical privileges.
- In 2000, the Regional Program Clinical Director for Critical Care, Dr. Noel Gibney, was appointed as acting Divisional Director and subsequently, in 2002 was appointed as Divisional Director.
- **This allowed the academic Division and the Clinical Department to merge their vision, mission and goals.**

Attachment 1 – Slide 7 of 21

Clinical

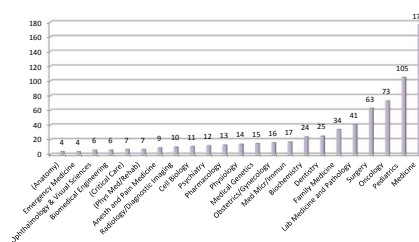
- The Division of Critical Care Medicine, University of Alberta/Department of Critical Care Medicine, Edmonton Zone, Alberta Health Sciences (DCCM) is **(one of) the largest integrated academic and clinical critical care units in Canada.**
- DCCM provides Intensivist coverage for **8 Critical Care Units** (multisystem and specialized) in **5 hospitals** totaling **121 beds**. The DCCM provides care for over **6500 patients** per year (over **37500 patient days**). Thousands of hospitalized patients are seen by our Medical Emergency or Rapid Response teams annually.

Attachment 1 – Slide 8 of 21

Clinical

- The DCCM has **50 members**, of whom 36 have their primary academic appointment in the DCCM.
- The DCCM is **larger, in terms of members and Faculty, than the two current Canadian academic Departments of Critical Care Medicine (Calgary and Dalhousie).**
- The DCCM has **9 primarily appointed Faculty members (5 GFT and 4 special continuing appointments)**. In addition, the Division has six GFT members secondarily appointed to Critical Care.
- The DCCM was successful in recruiting 2 additional special continuing status Faculty this year and will join the FoMD in 2015 and 2016. Finally, the DCCM has a translational anesthesiology based Intensivist researcher in the Clinical Investigator Program and will join Faculty in 2018. **This will mean the proposed Academic Department will have 16 GFT/SCS members by 2018.**

Attachment 2 – Slide 9 of 21



Attachment 2 – Slide 10 of 21

10

Clinical

- **Base Specialty**
 - 56% Medicine (Pulmonary, Nephrology, Infectious Disease, Hepatology, Cardiology, GIM)
 - 15% Anesthesia
 - 23% Surgery (Trauma, General, Cardiac, Burns)
 - 6% Emergency Medicine

Attachment 2 – Slide 11 of 21

Research

- The academic productivity of the proposed Department has increased steadily. In 2013, 79 unique publications were documented by Divisional members. This increased to 94 in 2014. It is expected 2015 will see over 100 unique publications
- Dr. Sean Bagshaw, a clinician scientist and the Director of Research for the DCCM, holds a Tier II *Canada Research Chair in Critical Care Nephrology*.

Attachment 2 – Slide 12 of 21

Research

- Since 2009, research activity in the DCCM has been successful in securing funding for the following (mostly peer-reviewed) grant applications: *Canadian Institutes for Health Research, Alberta Innovates: Health Solutions Alberta Heritage Fund for Medical Research, Canadian Intensive Care Foundation, Royal Alexandra Hospital Foundation, University of Alberta Hospital Foundation, Rick Hansen Foundation Man in Motion, Physician Services Incorporated, Children's Hospital of Eastern Ontario Research Institute, Royal Alexandra Hospital Nursing Research Fund, Transplant Fund Value Added, Canadian Blood Services, Edmonton Civic Employees Charitable Assistance Fund, Women and Children's Health Research Institute Innovation Grant, Centre for Excellence for Gastrointestinal Inflammation and Immunity Research, and Royal Alexandra Hospital Nursing Research Fund.* Annual grant funding has increased from **\$443,129 in 2013 to \$1,454,231 in 2015.**

Attachment 2 – Slide 13 of 21

Education

- The DCCM operates an accredited 2 year RCPC Adult Critical Care Medicine training program.
- Currently training six residents that have already completed primary specialty
- The program has recently been approved for growth of an additional resident per year (third largest in country)
- The DCCM trains one or two international critical care residents a year in addition to the RCPC residency program trainees
- The DCCM has developed a research fellowship for graduate training and a cardiac intensive care fellowship (one and two year)

Attachment 2 – Slide 14 of 21

Education

- The training program is also responsible for providing Critical Care exposure of two to three months duration to approximately 125 residents from the Department of Surgery, Medicine and its subspecialties, Emergency Medicine, Anesthesia, Neurosciences, Cardiovascular Surgery, Obstetrics and Gynecology as required by the RCPC.
- Graduate student supervision in health services research, clinical epidemiology, translational research is increasing.

Attachment 2 – Slide 15 of 21

Other Contributions

- Canadian Critical Care Society
- End of Life Care
- Goals of Care Designations
- Canadian Critical Care Trials Group
- Trauma Services
- Burn Treatment
- Cardiac Surgery
- Neurosciences
- Donation and Transplantation
- Medical Simulation
- Crisis Management
- Sepsis Infectious Disease – H1N1, Ebola, MERs

Attachment 2 – Slide 16 of 21

Risks to not proceeding

- Impair recruitment and research productivity
- A disengaged Clinical Faculty will be unlikely to continue to contribute in the same way (time, \$250K per year) placing our education and research infrastructure at risk
- Competitively disadvantaged compared to other Departments of Critical Care Medicine

Attachment 2 – Slide 17 of 21

Critical Care Organizations in Academic Medical Centers in North America: A Descriptive Report

Stephen M. Pastores, MD, FCCM^{1,2}; Neil A. Halpern, MD, MCCM^{3,4}; John M. Ortopello, MD, FCCM⁵; Natalie Kostelccky, RN⁶; Vladimir Kvetan, MD, FCCM⁷

Objectives: With the exception of a few single-center descriptive reports, data on critical care organizations are relatively sparse. The objectives of our study were to determine the structure, governance, and experience-to-date of established critical care organizations in North American academic medical centers.

Design: A 40-item survey questionnaire was electronically distributed using Survey Monkey to the leadership of 27 identified critical care organizations in the United States and Canada between September 2014 and February 2015. A critical care organization had to be headed by a physician and have primary governance over the majority, if not all, of the ICUs in the medical center.

Measurements and Main Results: We received 24 responses (89%). The majority of the critical care organizations (83%) were called departments, centers, systems, or operations committees. Approximately two thirds of respondents were from larger (> 800 beds) urban institutions, and nearly 80% were primary university medical centers. On average, there were six ICUs per

academic medical center with a mean of four ICUs under critical care organization governance. In these ICUs, intensivists were present in-house 24/7 in 49%; advanced practice providers in 63%; hospitalists in 21%; and telemedicine coverage in 14%. Nearly 60% of respondents indicated that they had a separate hospital budget to support data management and reporting, overnight of these ICUs, and rapid response teams. The transition from the traditional model of ICUs within departmentally controlled services or divisions to a critical care organization was described as gradual in 80% and complete in only 20%. Nearly 90% indicated that their critical care organization governance structure was either moderately or highly effective; a similar number suggested that their critical care organizations were evolving with increasing domain and financial control of the ICUs at their respective institutions.

Conclusions: Our survey of the very few critical care organizations in North American academic medical centers showed that the governance models of critical care organizations vary and continue to evolve. Additional studies are warranted to improve our understanding of the factors that can foster the growth of critical care organizations and how they can be effective. (Crit Care Med 2015; XX:00-00)

Key Words: administrative, critical care; governance; intensive care unit; organization; staffing

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⁶Department of Critical Care Medicine, Icahn School of Medicine at Mount Sinai, New York, NY

⁷Department of Critical Care Medicine, Icahn School of Medicine at Mount Sinai, New York, NY

Attachment 2 – Slide 18 of 21

Critical Care Organizations in Academic Medical Centers in North America: A Descriptive Report

Stephen M. Paterson, MD, FCCM^{1,2}; Neil A. Halpern, MD, MCCM³; John M. Ortopello, MD, FCCM⁴; Natalie Koslosky, RN¹; Vladimir Kostan, MD, FCCM⁵

- The objective of the study was to determine the structure, governance, and experience to date of established critical care organizations (CCO) in North American academic medical centers. A CCO had to have an advanced governance structure, that is, headed by a physician with primary governance over the majority, if not all, of the ICUs and critical care operations in the medical center.
- They identified 37 CCOs. 10 were subsequently excluded leaving 27 CCOs identified.
- The first CCO has been in place for more than 30 years, four CCOs were set up between 1990 and 2000, five between 2001 and 2005, eight between 2006 and 2010, and six between 2011 and 2014. Only one CCO was exclusively a pediatric CCO.
- Approximately 38% (9/24) identified their CCO officially as a department, 21% (5/24) a center, 13% (3/24) a system, 13% (3/24) an operations committee, 4%(1/24) an institute, 4% (1/24) a service line, 4% (1/24) a signature program, and 4% (1/24) a critical care hospital.

Attachment 2 – Slide 19 of 21

UNIVERSITY OF ALBERTA
FACULTY OF MEDICINE & DENTISTRY
Division of Critical Care Medicine

Critical Care Organizations in Academic Medical Centers in North America: A Descriptive Report

Stephen M. Paterson, MD, FCCM^{1,2}; Neil A. Halpern, MD, MCCM³; John M. Ortopello, MD, FCCM⁴; Natalie Koslosky, RN¹; Vladimir Kostan, MD, FCCM⁵

- The objective of the study was to determine the structure, governance, and experience to date of established critical care organizations (CCO) in North American academic medical centers. A CCO had to have an advanced governance structure, that is, headed by a physician with primary governance over the majority, if not all, of the ICUs and critical care operations in the medical center.
- They identified 37 CCOs.
- The first CCO has been in place for more than 30 years, four CCOs were set up between 1990 and 2000, five between 2001 and 2005, eight between 2006 and 2010, and six between 2011 and 2014. Only one CCO was exclusively a pediatric CCO.
- Approximately 38% (9/24) identified their CCO officially as a department, 21% (5/24) a center, 13% (3/24) a system, 13% (3/24) an operations committee, 4%(1/24) an institute, 4% (1/24) a service line, 4% (1/24) a signature program, and 4% (1/24) a critical care hospital.

They Missed Us!

Attachment 2 – Slide 20 of 21

UNIVERSITY OF ALBERTA
FACULTY OF MEDICINE & DENTISTRY
Division of Critical Care Medicine

Questions?

Progress is impossible without change, and those who cannot change their minds cannot change anything.

- George Bernard Shaw

Attachment 2 – Slide 21 of 21

UNIVERSITY OF ALBERTA
FACULTY OF MEDICINE & DENTISTRY
Division of Critical Care Medicine

Proposal for the establishment of an Academic Department of Critical Care Medicine in the Faculty of Medicine and Dentistry

Overarching Goal

- To strengthen the academic mission of the FoMD by further development of the academic critical care medicine.

Development as a Specialty

- The first multisystem critical care units in Canada were developed in the late 1960's in Toronto, Edmonton and Winnipeg.
- A fellowship program in Critical Care Medicine developed in Edmonton by Dr. E.G. King in 1970, was one of the first of its kind.
- In the mid 1980s, Dr. King and Dr. Tom Noseworthy were instrumental in the development of the Critical Care Medicine training programs of the Royal College of Physicians and Surgeons of Canada (RCPSC).
- In 1989, the University of Alberta Critical Care Residency Program was one of the first to be accredited by the RCPSC.
- In 2000, the Regional Program Clinical Director for Critical Care, Dr. Noel Gibney, was appointed as Divisional Director. This allowed the academic Division and the clinical Department to merge their vision, mission and goals. Faculty members could now hold a primary appointment in the DCCM and secondary appointments, if desired, in other departments.
- In 2012, Alberta Health Services created Strategic Clinical Networks (SCNs). Aligned with the Departmental structure of the AHS, critical care was one of the initial specialties to be recognized with network foundation.

Clinical

- Critical Care units are becoming an increasing component of hospitalized care. A 2010 study demonstrated the need for intensive care continues to increase. Over 5 years in the US there has been a 4% decrease in the total number of hospital beds but an increase in ICU beds by 7%. Hospital non-ICU inpatient days increased by 5% while ICU inpatient days increased by 10%. Importantly, annual critical care medicine costs increased by 44%. (*Crit Care Med* 2010, 38:65-71). It is expected the ratio of ICU beds to hospital beds will continue to rise.
- The Division of Critical Care Medicine, University of Alberta/Department of Critical Care Medicine, Edmonton Zone, Alberta Health Sciences (DCCM) is (one of) the largest integrated academic and clinical critical care units in Canada.
- DCCM provides Intensivist coverage for 8 Critical Care Units (multisystem and specialized) in 5 hospitals totaling 121 beds. The DCCM provides care for over 6500 patients per year (over 37500 patient days). Thousands of hospitalized patients are seen by our Medical Emergency or Rapid Response teams annually.
- The DCCM has 50 members, of whom 36 have their primary academic appointment in the DCCM. The DCCM is larger, in terms of members and Faculty, than the two current Canadian academic Departments of Critical Care Medicine (Calgary and Dalhousie).
- The DCCM has 9 primarily appointed Faculty members (5 GFT and 4 special continuing appointments). In addition, the Division has six GFT members secondarily appointed to Critical Care. With these 15 members, the DCCM is larger than 7 Departments in the FoMD based on data provided in 2014.

- The DCCM was successful in recruiting 2 additional special continuing status Faculty this year and will join the FoMD in 2015 and 2016. Finally, the DCCM has a translational anesthesiology based Intensivist researcher in the Clinical Investigator Program and will join Faculty in 2018. This will mean the proposed Academic Department will have 16 GFT/SCS members by 2018.

Research

- The academic productivity of the proposed Department has increased steadily. In 2013, 79 unique publications were documented by Divisional members. This increased to 94 in 2014. It is expected 2015 will see over 100 unique publications
- Since 2009, research activity in the DCCM has been successful in securing funding for the following (mostly peer-reviewed) grant applications: *Canadian Institutes for Health Research, Alberta Innovates: Health Solutions Alberta Heritage Fund for Medical Research, Canadian Intensive Care Foundation, Royal Alexandra Hospital Foundation, University of Alberta Hospital Foundation, Rick Hansen Foundation Man in Motion, Physician Services Incorporated, Children's Hospital of Eastern Ontario Research Institute, Royal Alexandra Hospital Nursing Research Fund, Transplant Fund Value Added, Canadian Blood Services, Edmonton Civic Employees Charitable Assistance Fund, Women and Children's Health Research Institute Innovation Grant, Centre for Excellence for Gastrointestinal Inflammation and Immunity Research, and Royal Alexandra Hospital Nursing Research Fund*. Annual grant funding has increased from \$443,129 in 2013 to \$1,454,231 in 2015.
- Dr. Sean Bagshaw, a clinician scientist and the Director of Research for the DCCM, holds a Tier II *Canada Research Chair in Critical Care Nephrology*.

Education

- The DCCM operates an accredited 2 year RCPSC Adult Critical Care Medicine training program.
- Currently training six residents that have already completed primary specialty
- The program has recently been approved for growth of an additional resident per year.
- The DCCM trains one or two international critical care residents a year in addition to the RCPSC residency program trainees
- The DCCM has developed a research fellowship for graduate training and a cardiac intensive care fellowship (one and two year)
- In addition, the training program is also responsible for providing Critical Care exposure of two to three months duration to approximately 125 residents from the Department of Surgery, Medicine and its subspecialties, Emergency Medicine, Anesthesia, Neurosciences, Cardiovascular Surgery, Obstetrics and Gynecology as required by the RCPSC.
- Graduate student supervision in health services research, clinical epidemiology, translational research is increasing.

Other Significant Contributions to Society

- Canadian Critical Care Society – End of Life Care, Goals of Care Designations
- Canadian Critical Care Trials Group
- DCCM is integral to Trauma Services, Burn Treatment, Cardiac Surgery, Neurosciences and Donation and Transplantation with U of A Hospital a referral centre for Western Canada



Covenant Health
Grey Nuns
Community Hospital

January 15, 2016

Dr. Richard Fedorak
Interim Dean
Faculty of Medicine and Dentistry
University of Alberta
2J2.00 Walter C Mackenzie Health Sciences Centre
8440 – 112 Street NW
Edmonton, AB
T6G 2R7

Dear Sir:

RE: Critical Care Medicine

One can define a Department as a group comprised of individuals devoted to a particular academic discipline within a university. Not only is the goal to deliver excellent clinical care, but to further research, promote education, and generally support and advance the mission of the institution.

Since Dr. Zygun joined the Division of Critical Care in 2012, he has been focused on the transition from Division to Departmental status. It was a vision that was shared by the membership and we fully supported his efforts. We have grown tremendously during his tenure and now have strong leaders in the areas critical to Department success. We have a sought after training program, national research leaders as well as clinical expertise in cutting edge clinical care such as transplantation and cardiac support devices. As a consequence, we will be able to recruit outstanding individuals who will achieve individual and institutional success.

The Grey Nuns team fully supports this next phase of Critical Care in Edmonton without reservation. We are excited for the future and will support our Department in any way possible.

Yours truly,

Shelley Duggan, MD, FRCPC
Facility Chief, Grey Nuns ICU

cc: Dr. David Zygun

March 16, 16

Dr. Richard Fedorak
Dean, Faculty of Medicine and Dentistry,
University of Alberta,
2J2.01WC Mackenzie HSC
Edmonton, AB T6G 2R7

Dear Dr. Fedorak,

As Site Chief of Critical Care at the Royal Alexandra Hospital, I am writing this letter to express my support of the Division of Critical Care Medicine's application for Departmental status within the FoMD at the University of Alberta. Our site has a very active role in the education of residents from various specialties and in training our own RCPSC Adult Critical Care Medicine residents, but we feel we have been underperforming with respect to academic productivity.

Over the past year, we have successfully recruited an Otolaryngologist/Intensivist who is completing his Master's degree in Health Quality and an Anesthesiologist/Intensivist who is completing her PhD in Physiology in the Clinical Investigator Program. We have several impending retirements in the next 3-4 years, and as we work on our strategic plan, we look to recruit towards our future goals of increasing our academic productivity, particularly in the area of Health Quality research. I feel strongly that the graduation of our Division to Departmental status will give us a competitive advantage in recruiting individuals who will help achieve these goals. We are very grateful for your ongoing support of this process.

Sincerely,



Jonathan Davidow

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Edmonton, Alberta, Canada T6G 2G3
Tel: 780.407.8861
Fax: 780.407.3200
www.anesthesiology.med.ualberta.ca

17 Jan 2016
Edmonton AB

Richard Fedorak MD, FRCPC
Interim Dean, Faculty of Medicine and Dentistry
University of Alberta
Edmonton AB, Canada

Re: Support for Critical Care's bid to become a full department

Dear Dr Fedorak,

The Department of Anesthesiology and Pain Medicine is fully supportive of the Division of Critical Care Medicine being awarded full Department status in the FoMD at the University of Alberta.

To some, this may be surprising in that Critical Care Medicine had its beginnings largely in anesthesiology, with other specialties such as pulmonology. However, it has become clear to us in anesthesia that Royal College certification in anesthesia does not fully prepare one to practice as a specialist in Critical Care Medicine. The same applies to Pulmonology. Additional specific training in Critical Care Medicine is now necessary to produce a competent anesthesiologist/intensivist, as it does for all other specialties such as pediatrics, surgery, medicine, emergency medicine and others.

You have heard me say before that there is no question that Critical Care Medicine has reached 'stand alone' specialty status. I say that for the following reasons:

- The Royal College says so: Critical Care Medicine has its own residency program and specialist credential
- Critical Care is a unique body of knowledge, science and literature with a research and education agenda based on and driving these factors
- Specialists in Critical Care Medicine are required to possess unique credentials, and are subject to unique privileging by health care organizations
- Critical Care as a specialty has its own professional associations, societies, awards, scientific meetings, etc
- Gravitation to 'closed units' because of the unique body of knowledge is occurring on an international scale.

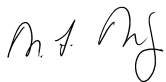
Clearly, the future of acute care medicine is integrally connected to Critical Care Medicine as larger and larger portions of our hospitals become critical care, observation and step down units. The natural consequence is that greater and greater proportions of our research base (especially clinical and health

systems) and learner education will fall to specialists in Critical Care Medicine.

Taken together, these factors insist that Critical Care Medicine has an academic agenda that is unique and substantial. The mission of the Faculty of Medicine and Dentistry is highly dependent on the activities of Critical Care Medicine now, and will only grow into the future in my opinion.

To reiterate my opening statement: The Department of Anesthesiology and Pain Medicine is fully supportive of the Division of Critical Care Medicine being awarded full Department status in the FoMD at the University of Alberta.

Yours truly,

A handwritten signature in black ink, appearing to read "M. F. Murphy". The signature is written in a cursive style with a large, looped "M" and "F".

Michael F Murphy MD, FRCPC
Professor and Chair

cc. Dr David Zygun