University of Calgary – Critical Care Medicine

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Program Highlights

Our program accepted its first resident in 1998 and since then has trained two to four residents per year. The program is based primarily in 3 major Calgary tertiary hospitals (Foothills Medical Centre, Peter Lougheed Centre, and Rockyview General Hospital) and received full accreditation by the Royal College in 2009.

Our 3 regional hospitals offer state-of-the-art intensive care units. Two of our critical care units recently underwent major renovations and reconstruction. The Peter Lougheed site was renovated in 2009 to accommodate up to 22 patients. Last year, the new McCaig ICU at the Foothills Medical Centre was completed. This new unit will accommodate 36 patients and has been recognized for its award-winning design. Additionally, a new South Health Hospital is scheduled to open its ICU in the spring of 2013. All critical care units are run and staffed by fully trained intensivists from a variety of specialist backgrounds. Total admissions of approximately 3500 ICU patients per year in Calgary provide a wide spectrum of disease processes [medical, surgical (including cardiovascular), trauma, neurosurgical, burn and transplant (renal and bone marrow)].

As mentioned above, our adult clinical experience in critical care is divided between the Foothills Medical Centre, the Peter Lougheed Centre and the Rockyview General Hospital:

FOOTHILLS MEDICAL CENTRE


b. Cardiovascular ICU (CVICU) with a dedicated 14-bed unit for the postoperative care of coronary artery bypass surgery, valvular surgery, and thoracic aortic surgery patients.

PETER LOUGHEED CENTRE

a. Multi-system medical-surgical unit currently operating at 19 beds. The PLC hospital functions as the regional referral centre for vascular surgery and ENT.

ROCKYVIEW GENERAL HOSPITAL

a. Multi-system medical-surgical unit currently operating at 10 beds. The RGH site functions as the regional referral centre for urology.
SOUTH HEALTH CAMPUS

a. The South Health Campus is a new hospital recently constructed in south Calgary. It is scheduled to open in the spring of 2013. The hospital will open its intensive care unit shortly thereafter, but its clinical acuity and resident composition is yet to be determined.

All Calgary ICUs are well structured academic units, organized with full-time attending staff to provide appropriate supervision. The attending physicians have fellowships in internal medicine, medical subspecialties, emergency medicine, neurology, anesthesia, trauma, and general surgery. The core clinical rotations at FMC, PLC, and RGH ensure a broad exposure to different patient populations and disease entities.

During clinical rotations, the Critical Care resident functions as a consultant in training rather. The resident supervises and teaches the rotating residents who are on clinical rotation in the ICU. At all times the Critical Care resident has appropriate faculty backup and supervision. Our program strives to provide a graded level of responsibility to trainees during their fellowship. Independence and autonomy are provided to the Critical Care resident as they gain exposure and confidence with their abilities. In our closed ICUs, and with faculty supervision, the CCM resident is expected to make the appropriate management decisions for the patients in the unit, and to liaise with the consultants from many other specialty areas who provide input to patient care. In accordance with the PARA collective agreement, Critical Care medicine residents are expected to take call from home eight times per 28-day rotation with a faculty member attending on call as backup. Specific rotation in-training evaluations (ITERS) serve to complement and evaluate the rotation-specific objectives of training.

The program recognizes the importance of effective inter-disciplinary work in the ICU and the smooth working relationships required with other departments. The program takes all possible opportunities to transmit the necessary knowledge and skills to achieve these relationships to Critical Care Medicine residents. The tone of cooperation is further set by the fact that preceptors attending within our various ICUs are all members of the Regional Department of Critical Care Medicine.

On site dedicated resources include internet search facilities, CD-ROMs, textbooks, an updated local library in the residents' office, and access to a city-wide ICU patient data repository (daily APACHE and other scoring system prospectively gathered on all our ICU patients). Residents will have the opportunity to participate in a variety of research activities (clinical, bench, education, health policy) as well as quality improvement projects, and will have the clinical and educational experience to achieve competence in this arena. Residents receive sufficient financial assistance to attend one critical care conference per year as well as the national Adult Critical Event Simulation program (ACES) in their first year of training and the national review course in their final year. As well, each resident is funded to participate in the annual Alberta Society of Intensive Care Medicine conference held in Lake Louise. Additional funding from the University of Calgary PGME office is available to residents for conference presentations on a
In addition to the direct one-to-one teaching by faculty which occurs on daily bedside rounds, and during the evaluation of new patients admitted to the ICU or seen in consultation, our program has developed a comprehensive educational program to effectively teach the RCPSC specialty-specific objectives of training. This curriculum includes:

1. **Weekly City-Wide Critical Care Medicine Grand Rounds**

   Departmental Grand Rounds are presented by attending physicians, Critical Care residents, consulting staff, and visiting professors. Critical Care residents typically present three to four rounds per year. The rounds are a state-of-the-art, critical review of the literature pertinent to the assigned topic. Often, these rounds are aimed explicitly at City-Wide decisions about standards of care and clinical protocols and integrate clinical-pathologic correlation rounds and pro-con debates. These rounds are video-conferenced to regional and provincial academic sites and are recorded and archived onto the internal web server.

2. **Monthly Journal Club**

   Our Departmental Journal Club serves to teach critical appraisal skills to our residents while reviewing studies relevant to our specialty. The presentation and critique process is a shared responsibility between assigned residents and faculty preceptors. Critiques generated from these activities are published on our internal web site for review.

3. **Academic Full-Day Curriculum (Core Content, CanMEDS, Procedural Skills, Ventilator Sessions)**

   Critical Care residents are excused from clinical responsibilities every Thursday to participate in the Academic Curriculum. This curriculum provides a comprehensive review of the key learning objectives related to the specialty of Critical Care Medicine. The educational activities are typically small group seminars jointly precepted by a resident lead and faculty preceptor.

4. **Quality Improvement**

   CCM residents are offered an opportunity to participate in a quality improvement or quality assurance projects to enhance their understanding of the principles of multidisciplinary and collaborative Critical Care Medicine practice. In preparation, residents may elect to attend a seminar organized by the Critical Care Medicine Quality Council.

5. **Critical Care Courses – University of Calgary Graduate Level Courses**

   Our Department currently offers three university-accredited courses through our Critical
Care Medicine Graduate Sciences program. These courses include: “Fundamental Basis of Critical Illness” (winter semester course chaired by Dr. Brent Winston, #623.02) and “Respiratory Science – Basic and Applied” (fall and winter course #623.03 and 623.04 chaired by Dr. Paul Easton). Registration and successful completion of these courses is expected as part of our academic curriculum. These courses are sponsored by our Department and may be integrated into a Graduate Degree program.

6. Mortality and Morbidity Rounds

Students will participate in monthly systematic reviews, presented by residents and faculty, of all FMC multidisciplinary ICU deaths and early ICU readmissions.

7. Human Patient Simulation Events

Residents participate in monthly simulated resuscitation scenarios targeting core competencies as outlined by the Royal College. These multidisciplinary activities take place in our McCaig and PLC simulation laboratories, utilizing appropriate fidelity training devices i.e. METI ECS patient simulator, Laerdal Sim Man 3G patient simulators, airway training devices, central venous catheter training mannequins and tube thoracostomy trainers. The cases and their learning objectives are developed by the CCM residents and facilitated by faculty preceptors. Regional critical care nurses and respiratory therapists participate and contribute to the educational feedback and debriefing process.

8. Ultrasound Curriculum

We are currently building a comprehensive Ultrasound Curriculum for our program. Our Department is fortunate to have a number of ECHO certified intensivists as faculty preceptors. The program currently offers an 8 week seminar series combined with hands-on, mentored practice to help CCM residents acquire ultrasonography skills relevant to Critical Care. This year, we plan to integrate an ECHO database and library to capture and store imaged studies. This database will be utilized as part of our educational curriculum, as well as a repository for imaging studies for research and QI activities.

9. Weekly Trauma Rounds

Critical Care residents rotating through their Trauma Surgery rotation participate in these weekly presentations of selected trauma/critical care topics and interesting case reviews. All residents are expected to present up to once/month while on a core trauma rotation.

10. Monthly Trauma Grand Rounds

Monthly rounds focusing on a detailed topic review or in depth case discussion that is telecast to the Southern Alberta Health Region. Trauma stream fellows will be expected to present once per year recognizing the possibility for over-lap between CCM weekly city-wide rounds and this setting.

11. Academic Project
Scientific enquiry is an expectation of the training program. Resident projects options are highly flexible and may include areas such as basic science, translational research, clinical studies, patient safety and quality initiatives or educational activities. Topic-related mentorship is available to facilitate the student’s project. To assist incoming CCM residents, we have created an 8 week curriculum to help residents get started with their research project. This curriculum covers key areas for success including a review of the various types of research activities available to residents, feasibility issues, funding opportunities, ethics applications and suggestions for successful publication and presentation of data.

Program Curriculum

Our program currently offers two training streams

1. **General Critical Care Medicine**: a minimum of 13 blocks spent on critical care rotations (including CVICU) with additional training in core selective and elective disciplines relevant to Critical Care Medicine for the remaining blocks of the two year program. Opportunities for training are individualized and flexible including rotations in medicine and surgical subspecialties, cardiovascular anesthesia, toxicology, research, echocardiography, diagnostic imaging, transport medicine (STARS) and transplant medicine. A pediatric rotation is also available.

   An academic program devoted to the development of research skills, with attainment of an advanced degree is available to residents who demonstrate an interest and proficiency. A Masters or PhD in Medical Science (Critical Care), Clinical Epidemiology or Health Research is offered by the University of Calgary and can be combined with the Critical Care Medicine residency program as a research fellowship. The Department also supports applications to the Clinical Investigator Program.

2. **Trauma / Critical Care Medicine**: administered conjointly by the Departments of Critical Care Medicine and Surgery. Thirteen blocks will be dedicated to critical care. Six of the remaining blocks focus on trauma care and trauma surgery, with elective experience in cardiothoracic and vascular surgery encouraged. Remaining rotations are utilized to best complement the resident’s surgical skills with other disciplines relevant to critical care.
Training Sites

1. **Foothills Medical Centre (McCaiq ICU):**
   - 36 bed ICU
   - 3 pod structure – Pod A (12 bed Med-surg), Pod C (12 bed Neuro-trauma), Pod B (6 bed Med Surg)

2. **Foothills Medical Centre Cardiovascular Unit (CVICU):**
   - 14 bed post-cardiac surgery ICU

3. **Peter Lougheed Centre ICU:**
   - 19 bed multidisciplinary ICU (medicine, surgery, vascular surgery)

4. **Rockyview General Hospital ICU:**
   - 10 bed multidisciplinary ICU (medicine, surgery, urology)

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