CRITICAL CARE WESTERN

Welcome to the University of Western Ontario and to Critical Care Western. We are dedicated to make your training in Critical Care the best possible and start you out on an exciting and satisfying career. We know that each of you come to Western with different expectations for your future practice, however we believe that we can design a training program that will meet your individual needs. First, a few words about us and this manual.

We hope the following information acts as a resource throughout your training program. Training in Critical Care in London primarily occurs in the critical care units of London Health Sciences Centre. University Hospital is the 25-bed Medical Surgical Intensive Care Unit (MSICU) located on the 2nd floor. There are six ‘bays’ of beds with Bay 6 (aka ‘Extended ICU’) structured for long-stay ventilated patients. Victoria Hospital is the 30-bed Richard Ivey Critical Care Trauma Centre (CCTC) located on the 2nd floor. Both ICU’s are multidisciplinary units each caring for general surgical/medical patients. Some differences however exist as MSICU cares for the critically ill neurosurgical/neurology and solid organ transplant patients while CCTC cares for oncology, trauma and obstetrics patients. The Cardiac Surgery Recovery Unit (CSRU) is our cardiovascular ICU that cares for patients before or after cardiac surgery. As a Senior (Critical Care Senior resident or fellow) you will be sited at all three ICU’s to experience all aspects of critical care. This manual is meant to be a resource throughout your training. We hope to make your training and excellent experience.

Dr. Mithu Sen
MD FRCPC, Associate Professor, Medicine
PGE Program Director
Critical Care Western
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# INTRODUCTION AND WHO’S WHO

First let us tell you a few words about us. As a Senior (Critical Care Senior resident or fellow) you will be sited at both ICU’s to experience all aspects of critical care. This manual is meant to be a resource throughout your training. We hope to make your training and excellent experience.

## CCTC

<table>
<thead>
<tr>
<th>Name</th>
<th>Specialty</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Mithu Sen</td>
<td>Critical Care &amp; Respirology</td>
<td>PGE Program Director Critical Care Site Director for Seniors – CCTC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Director of Undergraduate Medical Education – Critical Care</td>
</tr>
<tr>
<td>Dr. Scott Anderson</td>
<td>Critical Care &amp; Emergency Medicine</td>
<td>CCTC Site Chief</td>
</tr>
<tr>
<td>Dr. Rob Arntfield</td>
<td>Critical Care &amp; Emergency Medicine</td>
<td>Consultant</td>
</tr>
<tr>
<td>Dr. Dalilah Fortin</td>
<td>Critical Care &amp; Thoracic Surgery</td>
<td>CCTC Site Education Director (Junior Residents)</td>
</tr>
<tr>
<td>Dr. John Fuller</td>
<td>Critical Care &amp; Anesthesia</td>
<td>Consultant</td>
</tr>
<tr>
<td>Dr. Raymond Kao</td>
<td>Critical Care &amp; Internal Medicine</td>
<td>Consultant</td>
</tr>
<tr>
<td>Dr. Claudio Martin</td>
<td>Critical Care &amp; Internal Medicine</td>
<td>Program Chair</td>
</tr>
<tr>
<td>Dr. Neil Parry</td>
<td>Critical Care &amp; Trauma</td>
<td>Trauma Site Chief</td>
</tr>
</tbody>
</table>

## MSICU

<table>
<thead>
<tr>
<th>Name</th>
<th>Specialty</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Karen Bosma</td>
<td>Critical Care &amp; Respirology</td>
<td>Consultant, Senior Resident Research Director</td>
</tr>
<tr>
<td>Dr. Ron Butler</td>
<td>Critical Care &amp; Anesthesia</td>
<td>CSRU Site Chief</td>
</tr>
<tr>
<td>Dr. Lois Champion</td>
<td>Critical Care &amp; Anesthesia</td>
<td>Consultant</td>
</tr>
<tr>
<td>Dr. Jeff Granton</td>
<td>Critical Care &amp; Anesthesia</td>
<td>CSRU Education Director</td>
</tr>
<tr>
<td>Dr. Wael Haddara</td>
<td>Critical Care &amp; Endocrinology</td>
<td>MSICU - Site Chief</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MSICU Interim Site Education Director (Senior &amp; Junior Residents)</td>
</tr>
<tr>
<td>Dr. Tina Mele</td>
<td>Critical Care &amp; General Surgery</td>
<td>Faculty/Program Research Director</td>
</tr>
<tr>
<td>Dr. David Leasa</td>
<td>Critical Care &amp; Respirology</td>
<td>MSICU</td>
</tr>
<tr>
<td>Dr. Michael Sharpe</td>
<td>Critical Care &amp; Anesthesia</td>
<td>Consultant</td>
</tr>
<tr>
<td>Dr. Ravi Taneja</td>
<td>Critical Care &amp; Anesthesia</td>
<td>Consultant</td>
</tr>
</tbody>
</table>
At University Hospital is the Cardiac Surgery Recovery Unit (CSRU) that cares for postoperative cardiac surgery patients. This is a 14-bed ICU that is located across from the MSICU. The following members of our program also attend in the CSRU as well.

<table>
<thead>
<tr>
<th>Name</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Eyad Althenayan</td>
<td>Neurocritical Care and Consultant in CSRU</td>
</tr>
<tr>
<td>Dr. Scott Anderson</td>
<td>Critical Care &amp; Emergency Medicine</td>
</tr>
<tr>
<td>Dr. Dan Bainbridge</td>
<td>Anesthesia and Consultant in CSRU</td>
</tr>
<tr>
<td>Dr. Ron Butler</td>
<td>Critical Care &amp; Anesthesia</td>
</tr>
<tr>
<td>Dr. Davy Cheng</td>
<td>Anesthesia and Consultant in CSRU</td>
</tr>
<tr>
<td>Dr. Jeff Granton</td>
<td>Critical Care &amp; Anesthesia</td>
</tr>
<tr>
<td>Dr. Phil Jones</td>
<td>Anesthesia and Consultant in CSRU</td>
</tr>
<tr>
<td>Dr. Ray Kao</td>
<td>Critical Care &amp; Internal Medicine</td>
</tr>
<tr>
<td>Dr. Dave Nagpal</td>
<td>Critical Care &amp; Cardiac Surgery</td>
</tr>
<tr>
<td>Dr. Richard Novick</td>
<td>CVT and Consultant in CSRU</td>
</tr>
</tbody>
</table>

In addition, members of our Program provide specialized care at all ICU sites.

<table>
<thead>
<tr>
<th>Name</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Bryan Young</td>
<td>Neurocritical Care</td>
</tr>
<tr>
<td>Dr. Teneille Gofton</td>
<td>Neurocritical Care</td>
</tr>
<tr>
<td>Dr. Valerie Schulz</td>
<td>Palliative Care</td>
</tr>
<tr>
<td>Robert Sibbald</td>
<td>Ethics</td>
</tr>
</tbody>
</table>
IMPORTANT CONTACT INFORMATION

Office of the Program Director

Program Director: Dr. Mithu Sen
mithu.sen@lhsc.on.ca

Program Administrator: Corey Hilliard
LHSC – Victoria Hospital, Room D2-521
Telephone: 519-685-8500 ext. 56440
Fax: 519-685-8089
E-mail: corey.hilliard@lhsc.on.ca
criticalcarewestern@lhsc.on.ca

Critical Care Western Website
URL: http://www.schulich.uwo.ca/critical-care-western

City Wide Hospital Telephone and Paging Directory
Website: http://www.lhsc.on.ca/cgibin/priv/phonedir.pl

LHSC External Calling and Paging
Telephone: 519-685-8500

Medical Affairs
Website: http://www.londonhospitals.ca/departments/medical_affairs/index.php

Western Postgraduate Medical Education Office Website
URL: http://www.schulich.uwo.ca/medicine/postgraduate
OVERALL PROGRAM GOALS

Expectations for Training in Adult Critical Care Medicine at Western University

Preamble:

‘Critical care medicine is a multidisciplinary field concerned with patients who have sustained, or are at risk of sustaining life threatening, single or multiple organ system failure due to disease or injury. Critical care medicine seeks to provide for the needs of these patients through immediate and continuous observation and intervention so as, to restore health and prevent complications. A specialist in adult critical care medicine is a physician or surgeon who is competent in all aspects of recognizing and managing acutely ill adult patients with single or multiple organ system(s) failure requiring ongoing monitoring and support.’ From RCPSC “Objectives of Training in Adult Critical Care, 2005”.

Critical Care Western Program Goals

Our program goals are to graduate well-rounded intensivist with a sound knowledge base representing all roles of CanMEDS within the subspecialty of Critical Care.

Program Organization:

Training will be primarily based on encounters with patients presenting with a variety of medical and surgical illnesses to the intensive care units of the London Health Sciences Centre (LHSC), under the supervision of critical care faculty. Faculty will provide teaching by role modeling, bedside teaching and provision of constructive feedback. Patient care rounds, teaching rounds and clinical conferences will supplement patient encounters. In addition, there will be opportunity for elective clinical training in anesthesia, respirology, infectious diseases, cardiology, coronary care, trauma, critical care transport, community ICU, and pediatric critical care.
## CONTENT OF TRAINING

<table>
<thead>
<tr>
<th>Content of Training</th>
<th>Description</th>
<th>Duration</th>
<th>Site</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MANDATORY</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multidisciplinary ICU at the Senior Level</td>
<td>Minimum of 7 blocks</td>
<td>LHSC – University Hospital</td>
<td>(MSICU)</td>
</tr>
<tr>
<td>Multidisciplinary ICU at the Senior Level</td>
<td>Minimum of 7 blocks</td>
<td>LHSC – Victoria Hospital</td>
<td>(CCTC)</td>
</tr>
<tr>
<td>Post cardiac surgery care</td>
<td>Minimum of 2 blocks</td>
<td>LHSC-Cardiact Surgery</td>
<td>Recovery Unit (CSRU)</td>
</tr>
<tr>
<td>Neurocritical Care</td>
<td>Minimum of 1 block</td>
<td>LHSC</td>
<td></td>
</tr>
<tr>
<td>Scholarly project completion over 2 years</td>
<td>Scholar week (1 week) during core</td>
<td>Research mentors oversee</td>
<td>each project; coordinated</td>
</tr>
<tr>
<td></td>
<td>Neocritical Care rotations</td>
<td>and assessed by the</td>
<td>Senior Resident</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Research Director</td>
<td></td>
</tr>
<tr>
<td><strong>SELECTIVES &amp; ELECTIVES</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic Mechanical Ventilation</td>
<td>1 block</td>
<td>MSICU (EICU)</td>
<td></td>
</tr>
<tr>
<td>Critical Care Ultrasound</td>
<td>1 block</td>
<td>Victoria Hospital</td>
<td></td>
</tr>
<tr>
<td>Palliative Care &amp; Symptoms Management</td>
<td>1 block</td>
<td>Victoria &amp; University Hospitals</td>
<td></td>
</tr>
<tr>
<td>Transport</td>
<td>1 block</td>
<td>Victoria Hospital</td>
<td></td>
</tr>
<tr>
<td>Anesthesia</td>
<td>Up to 3 blocks</td>
<td>LHSC/SJHC sites</td>
<td></td>
</tr>
<tr>
<td>Cardiology or CCU</td>
<td>1 block</td>
<td>LHSC sites</td>
<td></td>
</tr>
<tr>
<td>Trauma</td>
<td>1 block</td>
<td>Victoria Hospital</td>
<td></td>
</tr>
<tr>
<td>Infectious Diseases</td>
<td>1 block</td>
<td>LHSC sites</td>
<td></td>
</tr>
<tr>
<td>Nephrology</td>
<td>1 block</td>
<td>LHSC sites</td>
<td></td>
</tr>
<tr>
<td>Respirology</td>
<td>Up to 3 blocks</td>
<td>Victoria Hospital</td>
<td></td>
</tr>
<tr>
<td>Community ICU</td>
<td>Up to 3 blocks</td>
<td>Community hospital</td>
<td></td>
</tr>
<tr>
<td>Research</td>
<td>Up to 6 blocks</td>
<td>Various sites</td>
<td></td>
</tr>
<tr>
<td>Pediatric ICU</td>
<td>1 block</td>
<td>Victoria Hospital</td>
<td></td>
</tr>
<tr>
<td>Thoracic Surgery</td>
<td>1 block</td>
<td>Victoria Hospital</td>
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Expectations

Over the two year training period (26 training blocks), it is expected that trainees will demonstrate ongoing development in each of the CanMEDS roles listed in the Goals and Objectives within CCTC and MSICU such that the depth, sophistication, efficiency and proficiency of their performance increases with experience and progression of training. Trainees completing the program will have achieved the key competencies described within each domain. An ‘Evaluation Blueprint’ describes the manner of trainee evaluation to ensure that the RCPSC objectives of training in critical care have been met prior to the completion of training. This includes an evaluation at the end of each rotation (or at a minimum at the end of every three blocks), using a critical care specific in-training evaluation report (ITER). In addition, there are weekly feedbacks based on CanMEDS roles. There is Multiprofessional Feedback and Witnessed Communication for “in the moment” communication. This formative evaluation also includes reports describing witnessed communication skills and witnessed management/leadership skills. We enable every resident to keep a portfolio as evidence of meeting competencies, as well as other items that each resident values. This is maintained in the office of the PD

Medical Expert

- Demonstrates sound understanding of the basic scientific and clinical knowledge relevant to Critical Care Medicine.
- History and physical examinations are complete, accurate and well organized.
- Uses all of the pertinent information to arrive at complete and accurate clinical decisions.
- Recognizes and manages emergency conditions resulting in prompt and appropriate treatments. Remains calm, acts in a timely manner and prioritizes correctly.
- Demonstrates safe application of equipment, careful monitoring, judicious use of drugs and the coordinated provision of multidisciplinary care for effective organ system support.

Communicator

- Establishes a therapeutic relationship with patients and families. Listens and communicates well. Knows and understands the consequences of language used to impart information. Provides clear and thorough explanations of diagnosis, investigation, management and prognosis.
- Effectively obtains, synthesizes and communicates relevant information from all sources.
- Acquainted with the unique stressful environment of the critical care milieu for patients and their families. Effectively communicates with families who may be dysfunctional, angry, confused or litigious.
- Establishes good relationships with peers and other health professionals. Effectively provides and receives information. Communicates concerns in a professional manner: accurate, timely and respectful.

Collaborator

- Interacts effectively with all health professionals. Recognizes and acknowledges their roles and expertise. Contributes to productive communication and cooperation. Motivated to create a constructive environment.
- Consults and delegates effectively. Demonstrates leadership. Deals effectively with competing issues.
• Handles conflict situations well. Demonstrates knowledge and skill in subverting and resolving conflict.
• Contributes productively to interdisciplinary activities. A helpful member of the health care team in service, education and research.

Manager

• Understands and makes effective use of information technology, such as methods for search medical databases.
• Makes cost effective use of health care resources based on sound judgement.
• Sets realistic priorities and uses time effectively in order to optimize professional performance.
• Understands the clinical, academic, and administrative affairs of an Intensive Care Unit.
• Demonstrates the ability to acquire, interpret, synthesize, record, and communicate clinical information in managing health problems in the critical care setting.

Health Advocate

• Understands the specialist’s role to intervene on behalf of patients with respect to the social, economic and biologic factors that may impact on their health.
• Understands the specialist’s role to intervene on behalf of the community with respect to the social, economic and biologic factors that may impact on community health.
• Recognizes and responds appropriately in advocacy situations.

Scholar

• Demonstrates an understanding of and a commitment to the need for continuous learning. Develops and implements an ongoing and effective personal learning strategy.
• Demonstrates the ability to effectively and efficiently access information from the medical literature using current information retrieval tools.
• Is able to critically appraise medical information. Successfully integrates information from a variety of sources into practice. Applies the concepts of applied research and epidemiology to evaluate newer forms of therapy.
• Understands and practises the principles of adult learning and helps others learn by providing guidance, teaching and by giving constructive feedback.

Professional

• Demonstrates integrity, honesty, compassion and respect for diversity.
• Fulfills the medical, legal and professional obligations of the specialist.
• Demonstrates reliability and conscientiousness. Meets deadlines, is punctual, and provides follow up.
• Demonstrates an understanding of the principles of ethics and applies these in the clinical and research setting.
• Demonstrates an awareness of own limitations, seeking advice when necessary. Accepts advice graciously.

GOALS AND OBJECTIVES OF THE SENIOR RESIDENT WITHIN THE CCTC AND MSICU

CCTC Supervisor: Dr. Mithu Sen
MSICU Supervisor: Dr. Wael Haddara

Medical Expert

The trainee will demonstrate the required knowledge, skills and attitudes of a critical care practitioner (For specifics, refer to the RCPSC Objectives of Training and Specialty Training Requirements in Critical Care Medicine). This includes:

• detailed knowledge of the generalist and specialist aspects of critical care illness, including management of the critical care unit.
• practical knowledge of the basic sciences relevant to the critically ill patient including pathology, physiology and pathophysiology, biochemistry, and pharmacology.
• proficiency in the required technical skills of an intensivist (see last page).
• stabilization, assessment, investigation and collaborative management of the critically ill patient with the ability to integrate information and lead the ICU health care team in effective patient care.
• coordination, facilitation and supervision of the care delivered by the health care team to ensure that the critical care service functions effectively within the wider environment.

Communicator

The trainee will demonstrate proficiency in:

• obtaining a thorough, relevant and accurate medical history.
• bedside presentation of patient problems.
• discussing diagnoses, investigations and management options.
• obtaining informed consent for medical procedures and treatments.
• communication with members of the ICU health care team.
• communication with referring physicians and their representatives.
• communication with patients and their families.

Collaborator

The trainee will:

• demonstrate proficiency in working effectively within the ICU health care team; promote team-working.
• demonstrate appropriate use of consultative services.
• recognize, respect and support the roles of other physicians, nursing staff, respiratory therapists, physiotherapists, occupational therapists, nutritionists, pharmacists, social workers, secretarial and support staff in provision of optimal patient care.
• ensure continuity of care through effective hand-over of clinical information.

Manager

The trainee will:

• oversee the provision of care and implementation of decisions regarding patient care, including effective delegation of care roles and leading a daily multidisciplinary team round.
• understand the principles and practical application of health care economics and ethics of resource allocation.
• utilize health care resources in a scientifically, ethically and economically defensible manner.
• understand the managerial and administrative responsibilities of the intensivist.
• demonstrate effective time management to achieve balance between career and personal responsibilities.

Health Advocate

The trainee will:

• recognize and respond appropriately in advocacy situations, as a part of the day-to-day patient care.
• recognize the health needs of critically ill patients.
• understand the intensivist’s role to advocate collectively for the health and safety of critically ill patients.

Scholar

The trainee will:

• develop and document an effective, long-term personal learning strategy.
• demonstrate the ability to generate clinical questions related to patient care and utilize and analyze available resources to develop and implement evidence based solutions to such questions.
• demonstrate effective teaching skills that are adapted to the needs of the learner.
• demonstrate the ability to identify areas in basic and/or clinical science requiring research and be aware of the principles involved in designing and conducting experiments to advance knowledge in these areas.

Professional

The trainee will:

• demonstrate integrity, honesty and compassion in delivery of the highest quality of care.
• demonstrate appropriate personal and interpersonal professional behaviours.
• demonstrate awareness of the role and responsibilities of the profession within society.
• develop and demonstrate the use of a framework for recognizing and dealing with ethical issues in clinical and/or research practice including truth-telling, consent, conflict of interest, resource allocation and end-of-life care.

Technical Skills

The trainee is expected to demonstrate proficiency in the technical aspects of each of the following:

• Assessment and maintenance of the airway
• Care of patient requiring orotracheal intubation
• Care of the patient managed using conventional ventilation
• Care of the patient managed using noninvasive ventilation
• Care of the patient requiring advanced ventilation strategies
• Care of the patient requiring prolonged ventilation, including tracheostomy and weaning techniques
• Resuscitation of the patient with undefined shock
• Central venous cannulation for resuscitation & hemodialysis, using ultrasound guidance
• Resuscitation of the patient with a rhythm disturbance (drugs, cardioversion, defibrillation, & pacing)
• Care of the patient in the ICU following high risk surgery & cardiopulmonary bypass
• Advanced cardiorespiratory monitoring
• Arterial cannulation
• Application & maintenance of a pulmonary artery catheter
• Portable chest radiograph interpretation
• Liaises with radiologists to organize and interpret clinical imaging
• Performs electrocardiography (ECG) and interprets the results
• Fiberoptic bronchoscopy in the intubated patient
• Thoracentesis & thoracostomy tube insertion
• Care of the patient requiring ICP monitoring
• Lumbar puncture
• Brain stem death determination & organ donor management
• Peritoneal tap
• Calculation of a nutritional plan
• Organization & supervision of the patient requiring transport
• Monitors and responds to trends in physiologic variables

Created: May 2004

Revised: July 2004; July 2005; April 2006; June 2006; June 2007; May 2008; March 2009; July 2009 DJL; June 2010 MS; May 2012 MS
CONDUCT OF THE SENIOR WITHIN THE CCTC AND MSICU

A. GENERAL CONDUCT OF THE SENIOR

Patient Care Rounds

Patient Care Rounds with the on-call ICU Consultant and Health Care Team is an essential activity for communicating and planning patient management goals for the day. The AM rounds are attended by everyone involved in the patient’s care and include: nursing, respiratory care, nutrition, social work, physiotherapy, occupational therapy and physicians. An agreed upon management plan must be developed daily for all patients in the ICU.

Senior Handover

It is mandatory that the Senior will be present in the unit from 0730 hours on the day they are on call. This Senior is expected to participate in a formal handover, usually walk around, from the Senior coming off nights, the Junior on call the previous night and the night Charge Nurse to identify any new patients or unstable patients that should be reviewed before rounds. It is important to briefly review the patients in the ICU before the team round to help ensure care is coordinated and that urgent diagnostic tests or treatments are initiated prior to rounds. Nursing handover occurs between 0700-0730 hrs (CCTC)/0715-0745 hrs (MSICU) and it is important to collaborate with the nurses when reviewing patients at this time to ensure that their handover can occur efficiently. Reviewing and assessing the unstable patients early helps ensure an uninterrupted patient care round.

The Senior must be prepared to explain and defend management plans and be willing to provide options if better ideas are expressed by team members. This requires first-hand knowledge of the patient’s problems. The Senior must constantly review and update this knowledge. Sometimes it means your own bedside reassessment and review as appropriate; at other times it is a review of the issues with the responsible Junior or Bedside Nurse. In addition, the Senior must determine when to seek consultation from other health care professionals, recognizing the limits of their expertise. Asking for help appropriately builds a good leader of a team. It is expected that after three blocks of core Critical Care Training, the Senior initiates and conducts morning rounds and continues to develop as a Junior consultant.

Communicator
(Conveying effective oral information)
(Shared decision making)

Collaborator
(Collaborative care)
(Understanding roles)

Manager
(Priority setting)

Medical Expert
(Patient problem identification)

Professional
(Responsibility to patient care)

Manager
(Collaborative decision-making)
The Senior must make certain that the Juniors are prepared for rounds and that all pertinent information has been gathered. Juniors need guidance on how to provide relevant, concise, accurate and appropriate patient presentations. The presentation should begin with a short statement describing the essence of the patient’s problem(s) thereby directing appropriate areas of focus. A long, roundabout history with numerous superfluous details distracts listeners from the important data and unduly prolongs morning rounds. The Senior should guide the Junior’s discussion without excessive interruption, ensuring important information is not omitted and that appropriate plans are discussed. Morning rounds should last no longer than 90 minutes, but duration usually depends on the number of ICU patients and complexity of cases.

Be clear which Junior is assigned to care for which patients during the day. It is best if this occurs before morning rounds as the Junior can listen more carefully and keep a detailed list of chores that need to be done.

If a procedure is to be performed, the patient’s nurse should be notified at morning rounds and an appropriate time should be arranged.

Following morning Patient Care Rounds the on-call Consultant may elect to visit selected patients at the bedside with the Senior and assigned Junior to further discuss patient problems and management.

Prioritization, Organization and Daily Chores

It is important to have routines and to have a sense of control over a potentially hectic unit. The Senior must be a central figure for communication and authority in the ICU. This need not take away the responsibility and thinking ability from the Junior. All information from different sources, both in and out of the ICU, must be filtered through the Senior and then distributed appropriately. The Senior and the Nursing Leader need to share as much information with each other as possible to help facilitate the assessment of problems, priorities, and the general unit tempo.

To be the key figure, it is mandatory that the on-call Senior have a physical presence in the ICU. The Senior must be capable to discuss why certain things are done (the subtleties of which may not be apparent in the chart) and plan ongoing care. Clear and concise communication with the ICU Consultant and the Attending Service is essential.
The Senior ensures that all tasks are done in a timely fashion. Both the Bedside Nurse and Junior must clearly understand the goals for their patient for that day. The Senior must check with the bedside at regular intervals to ensure these goals are being met and to make sure management plans are properly completed and that pertinent test results have been reviewed.

The Senior should not remove too much responsibility from the Juniors. Juniors should be encouraged to think and function independently (where appropriate), develop their thoughts and actively seek knowledge on their own. However, during crises situations the Senior’s place is at the bedside. This responsibility cannot be delegated to the Junior. The Senior must coordinate/assist in the care and for teaching.

There may be times when the complement of Juniors is reduced (e.g., on weekends when only one Junior per day is available). The Senior must be prepared to support all ICU activities and to and help in a practical way, e.g., by writing notes on patients, following up on tests, communicating with families. It is to be anticipated that the ICU Consultant will participate in a similar manner during these times.

Family Communication

Communicating with family is an important part of being in charge and an important component of patient care. Family members quickly recognize the Senior as having authority and knowledge. One of the most crucial lessons is to give families a consistent message as part of the team. It is mandatory that prognosis be discussed on rounds with the entire team present so that all give the same message. Problems may arise if consultants or physicians from other teams communicate different information. This problem can be mitigated if the Senior coordinates communication between the family and staff.

Death is inevitably a managed, not a ‘natural’ process of intensive care. The manner in which it is conducted will affect survivors, both family and staff, for the rest of their lives. Limitation of treatment or withdrawal does not mean denial of patient care; patients should not suffer, and where possible, their wishes should be determined and respected.
**Intensive Care Unit Charting**

Notes must be written daily on each patient in the ICU. Normally daily progress notes are the responsibility of the Junior. The Senior should ensure that the daily notes are written and that they are an accurate assessment of the patient's problems and therapy. The Senior is expected to write brief summary notes on the more critically ill or unstable patients in the unit.

**New Admissions**

The Senior, in conjunction with the Junior assigned to the patient, must evaluate each new admission. If the Junior is asked to see a patient whose condition is deteriorating in another area of the hospital, assess the patient as soon as possible and make plans for a safe transfer to the ICU. Before a definite decision is made to admit any patient, discuss the 'bed numbers' with the Nursing Leader/Charge Nurse. Beds/nursing staff are not always immediately available and early communication with adequate preparation makes for 'smooth' running, particularly during hectic days. Assessment of available ICU beds for elective admissions, e.g., surgery, transplants etc., must be performed between 0715-0800 hours in order to coordinate activity in the operating rooms. This assessment includes identifying potential discharges to 'make room' for new admissions. The ultimate number of ICU beds available for new admissions will be determined by the availability of beds for ICU discharges on the wards and will be coordinated by the Nursing Leader/Charge Nurse and ICU Clerical Staff. This information can be shared through use of the ICU Communication Board.

Any potential emergent admission, e.g., from the ward, Operating Room, Emergency Department, or from another hospital, must be conveyed to the Nursing Leader/Charge Nurse. Include requirements for special items such as ventilators, transducers or other equipment. If the patient arrives in critical condition, the Senior should direct therapy and urgent diagnostic testing simultaneously by dividing tasks and allocating them to appropriate personnel. This organized division of labor makes for quick, effective resuscitation. Following resuscitation, the Senior can coordinate an orderly and complete history, physical examination and chart review. Immediate follow-up consists of frequent checks, treating immediate problems, and re-evaluating the situation until a coherent picture of the patient, the diagnosis, and the treatment has evolved.
Each admission should be discussed with the ICU Consultant. The Senior should be able to provide a summary of the patient's problems and management strategy in a clear and concise manner, which does not involve numerous superfluous details. An attending ICU Consultant is on-call 24 hours/day and is always available for consultation. The Senior should never hesitate to call the attending Consultant for advice, at any time (see CPSO Document: Supervision of Post-Graduate Trainees).

Sign Out/Afternoon Rounds

Afternoon (PM) rounds consist of the ICU Consultants, Day Senior, On-call, Day/CCOT Senior, all Juniors and the Nursing Leader. These rounds start at 1530 hrs. They occur at the bedside and serve the following purposes:

- to follow-up on daily therapy/diagnostic tests discussed at AM rounds,
- to discuss treatment plans for the evening, and
- to inform the team about new admissions.

If the ICU Consultant is delayed to attend PM rounds it is the responsibility of the On-call and Day Senior/CCOT Day Senior to proceed.

It is the responsibility of the On-call and Day/CCOT Senior and Consultant to lead these rounds and ensure clear, concise, and organized handover without undue disruptions.

It is expected that the Senior lead a formal evening round with those on call and the Charge Nurse to review any pertinent issues that need to be addressed.

Supervising the Juniors, who are at different levels of training and have varying capabilities and knowledge, is a responsibility of the Senior. The Senior will have to decide how much responsibility is appropriate for each Junior. Orientating the Junior is another function of the Senior. It is important to clearly explain the routines and policies of the ICU, to communicate the expected performance and to answer any questions (see Western PGE ‘New Clerk’ Checklist). It is also common for Medical Students to have brief rotations in the ICU. It is essential that the Senior closely supervise them (see CPSO Document: Guidelines for Supervision of Medical Students).

To be able to teach a topic, one needs to understand and organize the material for accurate and concise presentation. Much teaching occurs at the bedside during the supervision of residents by the Senior. It is also helpful to have didactic sessions with the Juniors, Nurses or other personnel who request it. These may occur ad hoc or may be loosely scheduled to fit around the day's work. Brief focused ‘teaching moments’ work best.
## Supervision and Teaching

An essential part of the process of becoming a specialist involves gaining confidence in independent practice and learning how to supervise other less experienced trainees. Each Senior must therefore gain experience in supervising more junior staff. Although a junior trainee may refer to the Senior as their first line of advice and assistance, both of these trainees (the Junior and Senior) are subject to supervision from the ICU Consultant. There will be occasions (usually at the beginning of their training) when it may be inappropriate for a Senior to act as the supervisor. They themselves may require close supervision from the Consultant.

### Patient Safety

Creating a safe patient environment in the ICU always involves improvements in processes and in the organization of care. The Senior should be able to identify and minimize risk to the patient, help prevent infections and complications by following unit policies, and critically appraise and apply unit guidelines, protocols, and care bundles. Practical procedures underpin all forms of organ support and the Senior must ensure competency (indications, contraindications, planning, patient comfort, appropriate assistance or referral when required, informed consent, etc.).

See: [Canadian Patient Safety Institute](https://www.cpsi.ca) (CPSI).

### Growth and Graded Responsibility

The Senior usually experiences several transitions during his/her training. At first, everyone has a sense of insecurity in a new role and environment and the days are filled with learning routines and getting to know different and eccentric personalities (both in and outside the ICU!). After three months of core ICU rotations, it is expected that graded responsibility including running morning and afternoon rounds is the responsibility of the On-call Senior. Time management and clear delegation of responsibility is important. As the Senior gains experience and becomes more skilled with care of the critically ill patient and supervision of the health care team, he or she begins to function more autonomously. The goal is to ultimately be able to function as an intensivist at the consultant level.

<table>
<thead>
<tr>
<th><strong>Medical Expert</strong></th>
<th>(Functioning as a consultant)</th>
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<tbody>
<tr>
<td><strong>Manager</strong></td>
<td>(Supervising others)</td>
</tr>
<tr>
<td><strong>Scholar</strong></td>
<td>(Mentoring)</td>
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</tbody>
</table>

#### Medical Expert
- (Procedural skill proficiency)
  - (Knowing limits)
- (Principles of patient safety)
- (Following unit practices)

#### Communicator
- (Informed consent)

#### Health Advocate
- (Patient safety)

Integration and application of all CanMEDS roles for patient care
Conclusion

The Critical Care Western residency/fellowship is challenging physically, emotionally and mentally. One complex patient lets one appreciate the multiple aspects of patient management in the ICU. Intensive care medicine is the art and skill of taking care of the sickest patients and successfully resuscitating some of them, but equally important, not interfering with the natural process of dying in others.

We anticipate your residency/fellowship will be a challenging yet enjoyable and rewarding experience. Our role as Consultants is to support your pursuit of clinical excellence and to prepare you for your future career in critical care medicine.
B. MSICU/CCTC SENIOR CRITICAL CARE RESIDENT/FELLOW ROLES AND CALL RESPONSIBILITIES

Introduction

This document outlines the expected daily activity of the Senior (Critical Care resident or fellow) doing a block rotation within the MSICU at LHSC-University Hospital or CCTC at LHSC-Victoria Hospital. It details the expectations and role responsibilities of the Senior during a variety of defined weeks during the rotation: the ‘On-Call’ Senior; the ‘Day Only’ Senior; and the Academic Senior.

Rules

1. MSICU/CCTC will aim to have four Seniors for each block period\(^1\). A repeating four-week template describing clinical responsibilities will be used (see below). At times, there may be three Seniors and this template is also included and will be used when there are three Seniors.

2. Each week, each of the four Seniors will be scheduled as one of the following: ‘On-Call’ Senior; CCOT and ‘Day Only’ Senior; Academic Senior; and post call Senior. Responsibilities of each are defined in detail below. The post call Senior cannot be scheduled for Day/CCOT call. Respirology residents rotating through Critical Care as Seniors will not be assigned the Academic Senior Role.

3. Each Senior will not be scheduled for greater than ten home night calls within a 30-day period in accordance with the PARO contract: [http://www.myparo.ca/](http://www.myparo.ca/). Each Senior will have two weekends per block free from work expectations. At anytime, the MSICU/CCTC Consultant ‘on-call’ will be expected to fulfill the responsibilities of any absent Seniors.

4. MSICU/CCTC must, in advance, submit monthly ‘on-call’ schedules to the LHSC Switchboard and to PARO. This includes the names of the ‘on-call’ Juniors/Seniors, and all Attending Consultants. The respective Offices of the MSICU/CCTC Site Chiefs/Education Directors will be responsible to submit the schedule to LHSC switchboard and to the PGE Program Director, Critical Care Western. Senior requests must be submitted at least four weeks in advance. Once submitted, if one Senior needs to change the schedule, it will be his/her responsibility to obtain an agreement with all affected Senior(s) and Consultant(s). The ICU Program Director’s Office must be notified of the change so that an updated schedule can be posted.

5. Holiday and conference time must be documented with the respective Offices at the services affected and approved by the PGE Program Director. Only one Senior may be absent per week\(^2\). Once holidays and conference time is approved by the PGE Program Director it will then be entered into the One45\(^\oplus\) database after approval.

\(^1\) Refer to the ‘Critical Care Senior Rotations Schedule’.

\(^2\) Some exceptions may exist, but will require agreement with the Program Director.
The four Senior template will include all the roles. When there are three Seniors, the Scholar week will be revised such that all academic activities are coordinated by the Day/CCOT Senior who will also be responsible for organizing academic rounds (Board Rounds, VQI and CQI in addition to Journal Club and Ethical Critical Care). The Scholar week will be removed from the schedule. The Chief Residents are responsible to collaborate and facilitate the academic rounds at each site.

### ‘On-Call’ Senior Responsibilities (3 or 4 Senior Template)
On call and Post call Senior must round together in the ICU from 7:15 until 8:30 am.
Attend morning rounds - 2 Seniors should be present on-call/post call.
Most responsible Senior (On call) to ‘manage’ the unit.
Post call Senior must stay until after sign-out rounds.
Weekday ‘in-unit’ attendance 0730-1800 hrs with home ‘call back’ 1800-0730 hrs.
Supervises ‘tuck-in’ rounds @ ~2100 hrs.
Weekend and holiday ‘on-call’ responsibilities.

‘CCOT and Day Only’ Senior Responsibilities (4 Senior Template Only)

- Oversees educational rounds during the week (CQI, VQI, and Board Rounds) and demonstrates initiative to teach.
- Weekday ‘in-hospital’ attendance and presence in the ICU from 0730-1700 hrs, including dealing with emergencies in the ICU during morning rounds, seeing emergency consults, attending arrests during morning rounds.
- Available for CCOT consults 0730-1700 hrs weekdays and daily CCOT rounds.
- Responds to urgent/emergent situations that arise in the ICU during the day.
- Available to supervise procedures in the ICU undertaken by junior residents.
- Available to supervise and review ED consults to the ICU 0730-1700 hrs weekdays.
- Responsible for weekly Image Rounds presentations (MSICU only Friday pm @ 1230 hrs).
- Responsible for preparing CQI Rounds.
- Responsible for ICU Board Round presentations and liaising with Dr. Valerie Schulz in advance to organize issues to be discussed (MSICU 2nd Thursday noon of each month; Day CCTC 2nd Tuesday and 4th Thursday of each month) when scheduled during this week.
- Responsible for organizing/reviewing consults with Dr. Valerie Schulz for pain and symptom management within the ICU.
- CCTC: Ventilator Teaching and rounding with vent team/Consultant.
- CCTC: Liaison with second call CCTC Attending about ventilation strategies daily.
- MSICU: Responsible to organize ‘Ventilator Care at the Bedside’ Rounds during the week with the consultant based on a mutually relevant topic
- Senior is responsible for getting weekly feedback sheet filled out by CCOT/ Vent consultant for own portfolio and copying to Dossier.

Template Academic Senior Responsibilities (3 or 4 Senior)

- Responsible for all rounds delegated to Day Senior if three Senior template is used; needs to show initiative and organization skills
- Available for Simulation Teaching, if Academic Senior, on scheduled Tuesday afternoons (see below)
- Responsible to organize and present Junior Journal club (MSICU Friday am @ 0730 hrs; CCTC Thursdays twice per month); articles must be circulated seven days in advance.
- Responsible to liaise with Rob Sibbald to organize Ethical Critical Care Rounds once per month at CCTC.
- Senior is responsible for getting weekly feedback sheet filled out by Coach/ Research Mentor for own portfolio and copying to Dossier.
C. SENIOR ROLES

1. ‘On-Call’ SENIOR

The ‘On-Call’ Senior is responsible for the activities in the ICU during both the day and night hours. This includes: daily morning review with the daytime nursing leader before rounds; attendance and active participation at AM (0830 hrs) and PM (1530 hrs) rounds; leading radiology rounds (1030 hrs); family meetings, and daytime direction for the Juniors pertaining to patient care. Hours of expected ‘in-unit’ attendance are 0730 hrs to 1700 hrs, Monday to Friday with home ‘call back’ attendance from 1700-0730 hrs. The Senior will also perform ‘tuck-in rounds’ at ~2100 hrs.

On weekends the ‘On-Call’ Senior will be on-call from Saturday at 0800 hrs until Sunday at 1000 hrs or from Sunday at 0800 hrs until Monday at 1000 hrs (after AM rounds).

It is mandatory that the Senior will arrange a brief review with the ICU Day consultant at the end of the week for weekly performance feedback. It is the responsibility of the Senior to arrange this feedback and enter/store the information within their Portfolio and copied to his/her Dossier.

Medical Expert
- (Clinical decision making)
- (Application of appropriate therapies)
- (Functioning as a consultant)
- (Diagnostic reasoning)
- (Knowing limits of expertise)

Manager
- (Priority-setting)
- (Supervising others)
- (Time Management)

Communicator
- (Conveying effective oral information)
- (Shared decision making)
- (Therapeutic relationships with patients and families)

Collaborator
- (Collaborative care)
- (Understanding roles)

Scholar
- (Mentoring)
- (Giving feedback)
2. “CCOT and Day Only” SENIOR Week

The ‘CCOT and Day Only Senior’ is responsible for the activities in the MSICU during from 0730-1730 hours on weekdays. This includes:

- Responding to new CCOT consults on weekdays and rounding with the CCOT team daily
- Responding to urgent/emergent situations that arise in the ICU during am rounds
- Supervise and review ED consults to ICU
- Available to supervise procedures in the ICU undertaken by junior resident
- Responsible to organize ‘Ventilator Care’ teaching at the bedside (CCTC: Liaison with second call CCTC Attending about ventilation strategies daily; MSICU: Responsible to organize ‘Ventilator Care at the Bedside’ Rounds with the Consultant).
- Responsible to organize; pre-circulate, seven days in advance and present at Junior Journal Club (MSICU Friday am @ 0730 hrs; CCTC Thursdays twice per month)
- Responsible for weekly Image Rounds presentations (MSICU Friday pm @1230 hrs)
- Responsible for ICU Board Round presentations (MSICU 2nd Thursday at noon, each month; CCTC 2nd Tuesday and 4th Thursday of each month) when scheduled during this week
- Responsible for organizing/reviewing consults with Dr. Valerie Schulz for pain and symptom management within the MSICU (see Palliative Care document).
- Responsible for CQI and VQI rounds at CCTC

It is mandatory that the Senior will arrange a brief review with the CCOT/Ventilation Consultant at the end of the week for a weekly performance feedback. It is the responsibility of the Senior to arrange this feedback and enter/store the information within their Portfolio and copy it to his/her Dossier.

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<th>Medical Expert</th>
<th>Manager</th>
<th>Communicator</th>
<th>Collaborator</th>
<th>Health Advocate</th>
<th>Scholar</th>
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<tr>
<td>(Clinical decision making)</td>
<td>(Priority-setting)</td>
<td>(Conveying effective oral information)</td>
<td>(Collaborative inter-professional care)</td>
<td>(Advocating for patients)</td>
<td>(Develop/document an effective, long-term personal learning strategy)</td>
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<tr>
<td>(Application of appropriate therapies)</td>
<td>(Supervising others)</td>
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<td>(Understanding roles)</td>
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<td>(Develop effective teaching skills adapted to the needs of the learner)</td>
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<td>(Functioning as a consultant)</td>
<td>(Time management)</td>
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### 3. ‘ACADEMIC SENIOR’ Week

This week is for academic pursuits. This Senior is responsible for all academic rounds assigned to the Day/CCOT Senior when there are three Seniors present. Activities of the Senior during this week may include preparation for teaching rounds; readings; and research/QI expectations as well as Journal Club (article needs to be circulated seven days in advance); and Ethics Rounds in liaison with Rob Sibbald. These expectations need to be clearly outlined and the Senior must submit a list of objectives with a timeline for any activity during this academic week. This is the responsibility of the Senior and should be reviewed by the coach weekly. The Senior is responsible to enter into the portfolio and copy to the dossier. If research activities are undertaken also, this needs to be signed off by the research mentor and similarly entered into a portfolio and copied to the dossier.

In addition, the Academic Senior will be responsible to assist in the Simulation Laboratory teaching monthly. The MSICU ‘Academic Senior’ is first to attend but if unable, then the responsibility will fall to the CCTC ‘Academic Senior’.

Each Senior will be matched with a ‘coach’ to ensure that various benchmarks are met (see Senior ‘Performance’ Portfolio document for details). Each Senior will be expected to meet with his/her ‘coach’ on a quarterly basis. During these encounters the ‘coach’ will be expected to review the Senior’s Portfolio and complete a feedback form also to ensure an ongoing satisfactory level of performance. The outcomes of this week need to be carefully documented by the Senior. There will be quarterly research presentations during academic half days.

As holiday or conference leave is planned in advance, then the Senior will be scheduled for this activity during the academic week. There is no scheduled ‘call’. Any pre-approved ‘Restricted Licensure’ activities need to be scheduled outside of On Call or Academic /CCOT time.

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<thead>
<tr>
<th>Scholar</th>
<th>(Asking effective learning questions)</th>
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<td>(Identifying gaps in knowledge)</td>
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<td>(Assessing information for practice)</td>
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<td>(Research/Scientific inquiry)</td>
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<td>(Reflection on all aspects of practice)</td>
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D. PALLIATIVE CARE IN CRITICAL CARE CONSULTS

1. Appropriate Palliative Care Consults

Note: Any patient being presented at ICU Board Rounds, is appropriate for a palliative care consult. Patients for ICU Board Rounds include patients who would benefit from having a group discussion for the goals of care, and available health care options. These patients have been identified by the following criteria:

- Perception of an inappropriate level of life support by family or team
- Elderly (>80 years) with ICU stay > 5 days
- Difficulty weaning from ventilator; chronically critically ill >21 days
- Non-transplantable/replaceable, irreversible, single or multi-organ or system failure
- Progressive neurologic disease (dementia, MS, ALS, MD)
- Metastatic/life limiting cancer
- Procedure based identifiers: tracheostomy, PEG
- Recurrent ICU admissions: Two or more ICU admissions within the same hospitalization
- Family/SDM/HCP distress or differences impairing decision-making
- Consideration of ventilator withdrawal with expected death
- Expected decline in QoL

In addition, patients with pain and symptom management concerns for sedation/analgesia suggestions.

2. Completing a Palliative Care Consult

Please page me, Dr. Valerie Schulz, pager #19840, as early in the day as possible, so I can schedule my day to review the patient with you. I am often at University Hospital in the morning and Victoria Hospital in the afternoon, although this varies.

In addition, to the typical acute care consult, please add the following information:

1. Symptom assessment, for example: pain, confusion, agitation, delirium, sleep, nausea, dyspnea, etc.
2. Medication and drug abuse history.
3. Where the patient is on their ‘living – dying’ trajectory: Are they at risk of dying from progressive or acute irreversible disease? Describe: progressive illnesses over days, months or years, including co-morbidities, progressive functional decline, and frequency of emergency visits, hospital and Critical Care admissions. Support this information with important laboratory/imaging results. This information will aid prognostication.
4. Patients/families/SDM: Who they are, and what is their understanding of the current situation? Include their understanding of the significance of the illness, if available. This often differs from what they have been told.
5. Goals of Care: Include care plan, health care options available, patient/family choices, advance care planning documents, discussions that led to current code status.

VS Created: June 2009. Updated: MS June 2010
E. EDUCATIONAL OBJECTIVES FOR THE CRITICAL CARE OUTREACH TEAMS (CCOT)

Preamble

Critical Care Outreach Teams (CCOTs) have been implemented across Ontario in tertiary care hospitals and have become a common practice in many hospitals around the world. They are also known as Critical Care Response Teams, Medical Emergency Teams and Medical Outreach Teams. The primary purpose of such teams is to identify the deteriorating patient earlier in the course of deterioration and deliver high quality, expert care, in a timely fashion. The desired outcomes of CCOT intervention are earlier intervention whether through earlier admission to the Intensive Care Unit (ICU) or on the hospital ward and more appropriate selection of patients for admission to the ICU. The hoped for impact of these two strategies is reduced mortality, reduced cardiac arrests, reduced admissions to the ICU and shorter lengths of stay in the ICU.

Organization of CCOTs

At London Health Sciences hospitals (University Hospital and Victoria Hospital), the CCOTs are multidisciplinary teams consisting of an ICU nurse (RN), respiratory therapist (RT) and consultant intensivist. The teams operate on a 24/7 basis. The RN and RT are the first responders and will involve the intensivist as needed.

Rationale for involving trainees

Involvement in the CCOT initiative will allow trainees several educational opportunities including assessing patients at an earlier stage of critical illness. This is an invaluable skill that is not currently well addressed in the present model of ICU rotations.

Organization of Trainee Involvement

1. **Daytime**
   During daytime, the RN and RT will respond to calls and involve the Consultant Intensivist as required. As the workload of the ICU permits, the Consultant Intensivist may involve one or more of the Junior or Day/CCOT Senior residents in assessing and managing patients for whom the CCOT is called. Irrespective of actual involvement in patient management, there will be ongoing communication between the CCOT members and the ICU team regarding patients who may require ICU support.

2. **After-hours**
   The CCOT Consultant Intensivist is available by phone after hours. The CCOT Consultant Intensivist may enlist the ICU trainees in assisting with assessing, stabilization or admission of a CCOT patient to the ICU.
Educational Objectives

A. Senior Trainees

Expert Role:

The trainee will demonstrate the required knowledge, skills and attitudes of a critical care practitioner. This includes:

- Proficiency in the required technical skills of an intensivist for resuscitation
- Stabilization, assessment, investigation and collaborative management of the critically ill patient with the ability to integrate information and lead the ICU health care team in effective patient care

Communicator Role:

- To achieve proficiency in patient-centered skills in communicating with patients, families and other health care workers during impending critical illness
- To achieve proficiency in communicating with patients, families and other health care workers during end of life decision making.
- To achieve effective verbal and written communication related to critically ill patients at a level consistent with level of training

Collaborator Role:

- To participate and lead effectively in a mobile health care team responding to critically ill patients outside the ICU.
- To demonstrate an understanding of the roles of different health care practitioners in supporting critically ill patient
- To understand the elements of managing conflict between patients, families and health care workers
- To understand the elements of managing conflict between various health care practitioners.

Manager Role:

- To effectively manage scarce critical care resources in an ethical, patient-centered manner.

Evaluation

Trainees will be evaluated using the current evaluation methods that utilize Multiprofessional Feedback Form observing procedural skills and communication skills. Weekly feedback is received via One45 from faculty.

Addendum June 2007
If you receive an ICU consult from the floor, when you are on a rotation in the MSICU or CCTC, do the following:

- Obtain basic information from the calling physician,
- Call CCOT (33333), then
- Go and assess the patient.

The CCOT team (RN and RT) will meet you there. If the patient requires admission to ICU the CCOT team will assist you with transfer. If the patient does not require ICU admission, the CCOT team will inform CCOT MD as per usual protocol and follow the patient as necessary.

‘Day’ Senior and CCOT at Victoria Hospital (CCTC) and University Hospital (MSICU)

As of July 2010, the MSICU/CCTC ‘Day’ Senior is part of the CCOT care process. The ‘Day’ Senior works Monday-Friday from 7:15 am – 5:00 pm. He/She will participate fully in CCOT Rounds and any new CCOT consult during this period. This Senior will be supervised by the CCOT Consultant at each site.

The system will work as such:

1. CCOT nurse receives a new CCOT consult then calls the CCOT ‘Day’ Senior to attend with him/her
   a. If you (CCOT Nurse) believes this is an "A" type patient from the report that you get over the phone then call the CCOT consultant right away to come as well
   b. If you don’t get much info over the phone but once you arrive to the call and determine it is an “A” type patient then call the CCOT consultant right away to come as well
   c. If it is a "B" type or "C" type patient do your assessment and formulate a plan with the ‘Day’ Senior and then call the CCOT consultant to come to the call
   d. The ‘Day’ Senior is not replacing the CCOT consultant – but the level of graded experience is based on the Senior’s experience. Both the ‘Day’ Senior and CCOT consultant will review all new consults (M-F, 8-5)

2. The CCOT Call schedule that is posted in the CCOT office has been expanded to include the ‘Day’ Senior’s name and pager #.

Expectation is that the evaluation from the CCOT Consultant will be filed in the portfolio and entered into the weekly feedback for the Seniors. There will also be feedback from each CCOT team filed in the CCOT binder at each site to facilitate feedback to the CCOT Consultant regarding each Senior. This will be an opportunity to discuss the weekly feedback sheet within the CanMEDS Framework (see weekly feedback sheet).
GOALS AND OBJECTIVES OF THE SENIOR RESIDENT/FELLOW WITHIN THE CARDIAC SURGERY RECOVERY UNIT (CSRU)

Supervisor: Dr. Jeff Granton
Site: CSRU, LHSC-University Hospital

Preamble
Seniors will be expected to train for a minimum of 2 months within the CSRU.

Goals & Objectives

Medical Expert
Understand the normal, usual course of the post-bypass period, including the concept of fast-tracking of cardiac surgical patients

Understand and identify the principles of management of the following intraoperative complications:

- unexpected bleeding, hypo/hyperthermia, arrhythmia, hypotension, cardiac arrest, hypoxemia, adverse drug reaction, renal failure, low cardiac output, tamponade

Understand the bases for the development of postoperative problems, as listed below, and identify the measures to diagnose and appropriately prescribe the measures necessary to treat such problems:

- deep vein thrombosis, pulmonary thromboembolism, atelectasis, pneumonia, hypoxemia, hypercarbia, respiratory failure, oliguria, myocardial ischemia and infarction, congestive heart failure, arrhythmias, hypotension, hypertension, fever, bacteremia, delirium, stroke, gastroduodenal stress ulcer, pressure palsy and ulcers, renal failure, and ileus

Identify a postoperative management plan for the cardiac surgery patients that include attention to the following (see next page for details):

- maintenance of vital signs, ventilation and oxygen transport
- hemostasis and the use of blood products
- maintenance of the hydroelectrolyte balance
- analgesia and sedation
- nutrition and
- wound care and drains or catheters

Demonstrate proficiency in the following procedures:
- arterial and central venous cannulation
- insertion of, and monitoring using, a pulmonary artery catheter
• temporary external and transvenous pacemaker insertion and use
• defibrillation and cardioversion

I. Vital Signs; Hemodynamics; Ventilation; Oxygen Transport

• Identify and distinguish shock arising from various causes in pathophysiologic terms and by interpretation of a relevant history, physical examination, and investigations; prescribe appropriate management
• Identify the physiologic effects of acute hemorrhage of varying degrees and resulting clinical findings
• Identify the hemodynamic and clinical effects, potential indications, and adverse effects of commonly used vasoactive drugs
• Identify potential indications, contraindications, techniques, and complications of invasive and non-invasive hemodynamic and physiologic monitoring, including ECG, transcutaneous oxygen saturation, BP monitoring noninvasive or by arterial line, end-tidal CO2, central venous pressure, pulmonary artery catheter
• Identify and interpret the information obtained from physiologic and hemodynamic monitoring, as above, and identify the limitations of such information
• Understand the use and limitations of transthoracic (TTE) and transesophageal echocardiography (TEE) as a tool to facilitate decision-making
• Identify the components of the oxygen transport pathway and the factors which influence their function, relate abnormalities of the oxygen transport pathway to clinical problems in surgical patients, and identify measures to prevent or diagnose and treat such problems
• Understand basic concepts related to the mechanical support of the circulation using the intra-aortic balloon pump, including indications, contraindications, and interpreting arterial waveforms and balloon inflation timing
• Understand basic concepts regarding mechanical ventilation in the post cardiac surgery patient

II. Hemostasis and Use of Blood Products

• Identify the events of normal hemostasis and their time course
• Identify the characteristic features and management of continued bleeding in the post operative patient
• Identify the constituent elements, indications, advantages, and disadvantages related to the use of blood and blood products
• Understand the principles of cross-matching of blood and the indications, contraindications, and complications of the administration of uncross-matched, type-specific, and cross-matched blood
• Identify the likelihood of various complications of blood transfusion, and prescribe appropriate measures to avoid or treat such complications, including immediate and delayed hemolytic reactions, non-hemolytic reactions, transmission of infectious diseases, and complications of massive transfusion

III. Fluid Management and Acid-Base Problems

• Understand the physiologic basis for fluid, electrolyte, and acid-base management of the surgical patient
• Prescribe appropriate fluid and electrolyte management in terms of maintenance requirements,
correction of existing deficits, replacement of ongoing losses, and monitoring of fluid and electrolyte status

- Diagnose and prescribe appropriate treatment for fluid, electrolyte, and acid-base disturbances, on the basis of clinical manifestations and interpretation of blood gases and serum and urine biochemistry, including metabolic acidosis and alkalosis, respiratory acidosis and alkalosis, mixed acid-base disturbances, hyponatremia, hypernatremia, syndrome of inappropriate ADH release, diabetes insipidus
- Identify the composition of conventional intravenous solutions and understand the indications for their use and potential adverse effects in surgical patients

IV. Analgesia

- Understand the principles of management of pain in surgical patients including pharmacologic and non-pharmacologic means
- Identify the indications, techniques of administration (oral, parenteral, epidural, patient-controlled, etc.), contraindications and complications of analgesic drugs

V. Metabolic and Nutritional Care

- Identify the metabolic responses to surgical illness, relate their magnitude to the nature of the clinical problem, and describe their time course
- Identify the factors in clinical and laboratory assessment which contribute to an evaluation of the nutritional state
- Identify the implications of malnutrition for the surgical patient
- Identify protein and energy requirements of surgical patients and relate them to conventional parenteral and enteral preparations
- Identify complications related to the use of enteral and parenteral nutrition and their management
- Identify the management of acute metabolic problems including disturbances of calcium, potassium, sodium, glucose and magnesium

VI. Wound Management and Healing

- Identify the events and mediators of normal wound healing, their time course, and their clinical relevance
- Identify the factors associated with impaired wound healing and wound dehiscence, and measures to minimize their effect

Communicator

Communicate effectively and humanely with the patient, his or her relatives or any other concerned persons on the nature of the surgery done and the patient’s course during the postoperative period
| **Collaborator** | Participate effectively in the multidisciplinary team management of the post cardiac surgery patient and recognize and respect the various roles of the team members, including the physician, nurse, perfusionist, respiratory therapist, nutritionist and physiotherapist |
| **Manager** | Participate in the care responsibilities for the management of post cardiac surgery patient, most of which should be protocol driven. |
| **Health Advocate** | Demonstrate appropriate attention to the concerns of the post cardiac surgery patient and their families. Help create a safer patient care environment through the identification/prevention of critical incidents or adverse events and complying with infection control measures, unit protocols and care bundles. |
| **Scholar** | Demonstrate the ability for critical review of literature surrounding management of the post cardiac surgery patient. |
| **Professional** | Demonstrate professional behaviour appropriate to the level of training and in accordance with the goals of the overall Program. |

**Responsibilities**

The trainee will meet the objectives described through effective participation in:

- Attendance in the CSRU, including on-call responsibilities as assigned
- Assessment and follow up of patients in the CSRU
- Participation in the educational activities

**Evaluation**

All of the CSRU Consultants are encouraged to discuss performance on a regular basis with the Senior involved. In addition, all Consultants will be asked for feedback on the Senior towards the end of their rotation and an exit interview will be scheduled with the Education Supervisor. The Critical Care Senior In-Training Evaluation Report (ITER) will be reviewed, signed, and forwarded to the office of the Program Director, Critical Care Western.

DJL, RB, JG
Created: July 19, 2005;
Modified: Sept 28, 2005; June 28, 2006; June 2008; June 2010 MS, JG
**NEUROCRITICAL CARE OBJECTIVES AND EXPECTATIONS (ELECTIVE)**

<table>
<thead>
<tr>
<th>Contact &amp; Supervisor:</th>
<th>Dr. Teneille Gofton</th>
</tr>
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<tbody>
<tr>
<td>Site:</td>
<td>LHSC-University Hospital (MSICU), LHSC-Victoria Hospital (CCTC)</td>
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**Introduction**

This is a mandatory rotation (a minimum of one month) for Critical Care Medicine Seniors (residents and fellows) to enhance the breadth of their critical care experience in the care of patients with life-threatening disorders of the nervous system.

**Goals & Objectives**

**Medical Expert**

The resident will acquire the basic knowledge, skills and attitudes to be able to recognize, investigate, and manage life-threatening disorders of the nervous system, either primary conditions of the central/peripheral nervous system or neurological complications of systemic illness. At the completion of the rotation, the resident should possess a working knowledge of the following:

- Classification and pathophysiology of comatose states
- Systematic approach to the rapid diagnosis of the specific etiology of coma in various clinical situations
- Major causes of raised intracranial pressure and their therapies
- Pathophysiology, diagnosis and management of brain death with care from the neurological determination of death to transplantation
- Status epilepticus: classification and management
- Acute myelopathy: diagnosis and management
- Identification and investigation of respiratory failure due to neurogenic causes
- Approach to acute problems related to the peripheral nervous system (with the assistance of the neurological colleagues in this field)
- Approach to “failure to wean” from the ventilator
- Principles of management of head injury
- Management of various intracranial hemorrhages
- Diagnostic approach to neurological sequelae in transplant patients
- Diagnosis and management of acute/chronic CNS infections
- Appropriate applications of neurodiagnostic tests: EEG, continuous EEG monitoring, evoked responses and neuro-imaging

The knowledge base will include an appreciation of the basic sciences relevant to neurological diseases. The professional characteristics to be demonstrated and developed include responsibility, intellectual curiosity, self-
appraisal, compassion, and the ability to communicate with peers and patients, and a commitment to continuing medical education (see below). The skills to be demonstrated include:

- Recognize common abnormalities on brain computerized axial tomography (CT) scan
- Demonstrate proficiency in interpretation of CSF fluid analysis
- Demonstrate proficiency in the neurological determination of death
- Acquire experience and understand basic indications, contraindications, complications, technical aspects and quality assurance issues for the following:
  - Lumbar puncture
  - Continuous EEG monitoring
  - Event-related potentials

**Communicator**

- Communicate effectively with patients, their families, medical colleagues (particularly referring physicians), and other health care professionals
- When ordering investigative procedures, ensure there has been adequate communication about the patient with the person who will actually be doing and/or reporting the diagnostic study

**Collaborator**

- Be an effective teacher of other physicians (including medical students and junior house officers), other health care personnel, and patients.
- Willingly share knowledge with others (e.g., ICU staff, radiologists, technicians, etc.) thus ensuring the most effective delivery of health care to patients.

**Manager**

- Demonstrate the following professional skills in time management:
  - Recognize that effective use of time depends upon punctuality
  - Recognize that effective use of time requires planning
  - Develop speed as well as accuracy in clinical skills
  - Reserve time for reading and keeping current with the neurocritical care literature
  - Establish routines for carrying out regular activities and adhere to them

Maintain complete and accurate medical records:

- Record and maintain a complete and accurate medical record for every patient seen; this record will include the patient's history and the findings on physical examination (including the neurologic examination), a differential diagnosis, a provisional diagnosis, a plan for management, appropriate progress notes, and a comprehensive discharge summary.

Effectively coordinate the work of the health care team:

- Organize and supervise the more junior physicians and medical students in a manner that ensures the efficient and effective delivery of health care for the patients
- Indicate, by the treatment plan, that for the optimal treatment of many patients with neurologic disorder, a team approach is necessary – members of the team may include nurses, rehabilitation personnel (physiotherapists, occupational therapists, speech therapists, etc.), psychologists, social workers, etc.
### Health Advocate
- Educate, be able to generate and access information (e.g. printed material, video tapes web sites) and be available as a resource person to counsel patients effectively on neurological disorders
- Understand the role of national and international bodies in the promotion of neurocritical care

### Scholar
- Be able to critically assess the neurocritical care literature as it relates to patient diagnosis, investigation and treatment:
- Be able to participate in clinical or basic science studies as a member of a research team

### Professional
Demonstrate personal and professional attitudes consistent with a consulting physician role:
- Periodically review personal and professional performance against national standards set for the specialty
- Show appropriate respect for the opinions of fellow consultants and referring physicians in the management of patient problems and be willing to provide means whereby differences of opinion can be discussed and resolved
- Be willing and able to appraise accurately his/her own professional performances and show that he/she recognizes his/her own limitations with regard to skill and knowledge by appropriately consulting other physicians and paramedical personnel when caring for the patient

### Responsibilities
The Senior is expected to perform ICU consultations on patients with neurological problems at both LHSC hospitals. The Senior will conduct complete assessments on new patients and selected follow-ups, and review their assessment with the faculty supervisor. Opportunity will be provided to assist with EEG studies, electrophysiological studies of the peripheral nervous system, and interpretation of images of the brain.

Residents have the opportunity to do additional blocks of Neurocritical Care pending approval by Drs. Gofton and Sen.

Created by GB Young
Modified: June 2010 MS; June 2011 MS; June 2013 LKC, MS
SCHOLARSHIP IN CRITICAL CARE

Scholar Weeks

Becoming a “scholar” is an important role for you to develop during your training, regardless of whether your career path takes you to a community ICU or an academic centre. Both now as a senior resident, and in the future as an ICU consultant, you will need the skills to:

1) develop, implement and monitor your own personal continuing education strategy,
2) facilitate the learning of your patients/families, junior residents/students, and the critical care team
3) contribute to the development of new knowledge

Acquiring these skills takes time, practice, and mentorship, and that is why the CCW training program provides dedicated time during each clinical ICU block for scholarly activities. During each 4 week block of MSICU or CCTC, senior residents will have 5 weekdays of protected time, known as your Scholar Week. During your two year training period, this amounts to 70 weekdays spread over 14 blocks which are dedicated to developing your role as a scholar.

Expectations of the Senior:

Opportunities for you to practice and develop the skills of a scholar are incorporated into your training, so that by the time you graduate you will feel comfortable and competent in this role. The specific expectations for accomplishment during your scholar weeks are outlined below. As you advance through your training, your Coach (assigned to you) and your Scholarly Project Supervisor (chosen by you) will monitor your progress to ensure you are meeting the milestones to successfully complete the program. You will be evaluated and receive feedback on each scholarly endeavour as part of your overall program evaluation. During your scholar weeks, it is expected that you will devote your time to the following activities:

1. Personal learning / continuing education:
   a. Studying for your Royal College exam(s)
   b. Preparing for academic half days, completing required reading
   c. Reading around cases / topics pertaining to cases encountered on call
   d. Attending rounds designed to meet your learning needs, such as journal clubs, image rounds, grand rounds, ventilator rounds at the bedside, academic half days, etc.
   e. Book time to meet with a consultant for teaching in specific areas if needed to assist your learning

2. Teaching / facilitating learning of others:
   a. Preparing for teaching presentations as scheduled (*see CCOT & Day Only Senior, Section 2 within Senior Roles for complete list) including:
      i. Journal clubs
      ii. Academic half day presentations
      iii. Image rounds
      iv. Ventilator care at the bedside rounds
v. M+M rounds
vi. Board rounds

b. Preparing and delivering informal teaching sessions to junior residents

c. Planning and completion of a Scholarly Project/development of new knowledge

Scholarly Project

During your two year training period, you are required to complete at least one scholarly project to meet the requirements for successful completion of training. Completion of a scholarly project entails the following:

1) Oral presentation of completed project at the Western-McMaster Resident Research Day

AND

2) Written report of completed project submitted for evaluation by 2 consultants, (not your Coach or your Scholarly Project Supervisor)

Successful completion of both the oral and written components are required to graduate from the Critical Care Western Training program.

The purpose of the scholarly project is to develop new knowledge or answer a question that advances the practice of critical care medicine. Scholarly projects may take many forms, as the following examples illustrate:

- case report and review of the literature
- retrospective chart review
- observational cohort or case/control study
- randomized control study
- systematic review of the literature
- meta-analysis
- surveys
- surveillance studies
- quality improvement initiatives:
  - Evaluation of current practice compared to guidelines or standards
  - Development of evidence-based guideline or protocol
  - Evaluation of practice pre and/or post protocol implementation
- research on teaching
  - Development of a novel teaching or evaluation tool and assessment of its performance
  - Development of an educational curriculum and assessment of impact on student performance
- laboratory/ Basic Science project

Scholarly projects may be part of a larger program of research or quality improvement; in fact, collaboration and involvement in ongoing academic initiatives is encouraged. The key is to have a focused question that you can answer within your two years of training.
Oral presentation of results:

During an academic half day in the fall (typically late October/ early November), you will have opportunity to present your proposal or update on your scholarly project to your peers and the ICU consultants for feedback. It is expected that all senior residents participate, as this is a valuable opportunity for you to ask questions, address potential problems and ensure your project is on track.

During an academic half day in the spring (typically late March / early April), you will have opportunity to present your completed project to your peers and the ICU consultants for feedback. This is intended to be a practice session for the Western/McMaster Resident Research Day (typically held late April / early May). Any projects that are not at a sufficient level of completion will not be permitted to submit abstracts for the Western/McMaster Resident Research Day. Note that at least one oral presentation of your project is required to graduate from the program. Thus it is strongly advised to start your scholarly project early in your training to allow sufficient time to complete it. Note also that a study that failed in feasibility is different than an incomplete study; the former can still be presented, provided you explain what you learned that will assist the design of future studies to answer your question.

Written report:

A written report of your scholarly project will be due by February 28th of your graduating year. We encourage you to submit your report prior to this deadline. You will submit your report to the Resident Research Director, who will select 2 consultants (not your Coach or your Scholarly Project Supervisor) to evaluate your report. A passing mark on your written report is required to graduate from the program.

The written report will be structured in a format suitable for publication in a scholarly journal, according to the topic and nature of your scholarly project. At the outset of your project, with help from your supervisor, choose a journal to which you could submit your manuscript for publication. On that journal’s website, you will find instructions for authors, which will specify the requirements to which your written report must conform. When you submit your written report to the Resident Research Director, you will specify the journal you are targeting and attach the instructions to authors for that journal, along with your completed manuscript. Note that actual submission to the journal for publication is not required by our program; however, we certainly encourage you to submit and publish your work.

Expectations of the Research Supervisor (Mentor)

The supervisor will:

1. Provide advice with regard to the research objectives and clinical applicability of the research project.
2. Provide advice with regard to the direction of research and feasibility of completing the research project within the specified period of time.
3. Provide support and encouragement.
4. Provide direction with regard to potential sources of grant funding for the research project.
5. Advise with regard to potential collaborators who may have significant contributions to the project.
6. Review research proposals and results, and provide an ongoing critique throughout the research period.
7. Assist the Senior to prepare any required submissions to the Institutional Review Board or the Animal Care Committee and ensure that the appropriate approvals have been obtained prior to commencement of the study.
8. Be prepared to critique any draft manuscripts, abstracts and review all grant applications.
9. Advise/critique the preparation for any presentations.
10. Be an advocate on behalf of the Senior and ensure that the Senior fulfills the research objectives as outlined.

Example of a Quality Improvement Project (steps)

1. Evaluate the ICU current practice.
2. Review the current standard of care according to EBM.
3. Assess the level of that evidence.
4. Identify the differences between the daily practice and EBM.
5. Formulate a practical plan/protocol to achieve EBM standards.
6. Pilot the plan.
7. Re-evaluate the effects of the new plans on outcomes.
8. The project should be written in a scientific format (manuscript).
9. The Senior should present and defend the project to other ICU staff during formal meetings.
10. The ICU consultants/staff will decide if the project is credible or needs further works or modifications.
11. The final work will be kept in the ICU research book and should be sent for publication as an abstract and hopefully as a full manuscript.

CanMEDS roles related to Research

**Medical Expert**
The trainee will demonstrate proficiency in:
- Basic epidemiology
- Clinical study design
- Evaluation of clinical practice
- Knowledge translation (quality improvement) methodology such as rapid improvement cycle

**Communicator**
The trainee will demonstrate skill in conveying the objectives of the study or quality improvement project, the evidence supporting the proposal and the results of the study.

**Collaborator**
The trainee will demonstrate ability to work with team members to conduct the study or implement the change in practice.

**Manager**
The trainee will develop skills required to evaluate clinical practice in the ICU and to evaluate the resources and barriers for a successful research study or quality improvement project.
Health Advocate
The trainee will demonstrate skills required to optimize the delivery of clinically effective care and patient safety and be able to apply the knowledge to relevant and safe patient care.

Scholar
The trainee will develop skills to critically appraise clinical trial proposals, best evidence and knowledge translation techniques.

Professional
The trainee will demonstrate ethical and sound scientific judgment with respect to the conduct of clinical trials and quality improvement projects as well as become familiar with the Research Ethics Board and expectations.

Technical Skills
The trainee will show proficiency in:

- Critical appraisal
- Preparation of written proposals for research and quality improvement projects
- Preparation of written reports (abstracts, publications and internal reports) describing the results of the project

Added Notes
To ensure that all Seniors are making reasonable progress towards their goals, a project proposal abstract must be completed, signed by the resident and the project supervisor and submitted to the Senior Resident Research Director, Dr. Karen Bosma, as outlined.

These projects can be knowledge generation or knowledge translation, but must represent a substantive effort and progress over the course of the academic year.

For those residents that are interested in pursuing more research time may apply to do a research elective. This would be on the initiative of the Senior Resident. Detailed information can be found under the Research Elective.
IMPORTANT POLICIES FOR SENIOR RESIDENTS

There are important policies from the Schulich School of Medicine & Dentistry that our Senior Residents should be familiar with. These are provided for your information below.

Postgraduate training is governed by the Schulich School of Medicine & Dentistry’s ‘Code of Conduct’, which outlines the procedures for addressing incidents of possible intimidation and harassment. The Code of Conduct is available at http://www.schulich.uwo.ca/equity/codeofconduct.

Residents are also referred to the Western University Non-Discrimination/Harassment Policy at http://www.uwo.ca/univsec/mapp/section1/mapp135.pdf, these should be also part of the critical care handbook.
RESIDENT HEALTH AND WELLNESS

There is a significant body of literature on optimizing and prioritizing aspects of training that would optimize physician wellness and optimize patient safety. Many of these recommendations can be found in the *Towards a PanCanadian Consensus of Resident Duty Hours* document (www.residentdutyhours.ca) published June 27, 2013. While work hours are an important aspect of training, how we distribute that work is important.

These include factors such as fatigue risk management systems (FRMS) to ensure adequate sleep for each individual resident and strategies to mitigate fatigue. An example of this could be not undertaking tasks that are unnecessary during hours where the resident may not be as alert (ie: circadian rhythm related “dips” 2-4 am) or strategically taking naps if one is tired. This also includes one’s own judgement about moonlighting or any activities that may make an individual unnecessarily fatigued such that he/she may not be alert enough to learn and care for patients safely. There are also system’s issues that will continue to evolve to make residency education optimum. This is a learning process for both the senior and the culture and “community” around him/her. This is part of learning one’s own limitations as this will be an aspect of each trainee’s professional and personal life for years to come.

There are many resources available at the program level: Program Director, Coach, Research Mentor, RTC members, peers and Chief residents. At the University level: PGME Office and Learner Equity and Wellness Office, to support residents in our training program.

In addition, the literature suggests exercise programs available through Western, are also an important aspect of wellness, in addition to mentorship and counselling.

This is a new focus of residency training that is valuable to sustain our profession and prevent burnout as well improve the quality of life. This area will be developed through the course of this year.

Created June 29, 2013 MS
Critical Care Western Appeals Process

At our orientation, you will remember that the Appeals Process was reviewed. As well, information regarding the appeals process is discussed at Schulich’s Resident Orientation and is also provided in the orientation material given to residents at the start of the residency program.

Residents are directed to Schulich’s PGME website, which contains detailed descriptions of the appeals procedures http://www.schulich.uwo.ca/medicine/postgraduate/policies.

Any resident who receives a rating of ‘Does not meet expectations’ on an in-training evaluation report (ITER), or a rating of borderline when there is an associated requirement for remediation, is reminded of their right to appeal and of the policy governing such an appeal.

The Program adheres to the guidelines set out in the Schulich School of Medicine & Dentistry Postgraduate Medical Education Resident Evaluation and Appeals Policy. The full policy is available at: http://www.schulich.uwo.ca/medicine/postgraduate/policies

Briefly, a Resident may appeal the following:

1. An end of rotation ITER having an overall assessment statement of “Does Not Meet Expectations”
2. An end of rotation ITER having an overall assessment of “Borderline” if remediation or probation is required on the basis of that assessment
3. A decision by a Program Director and RTC that a remediation period was unsuccessful
4. A refusal by an RTC to complete a FITER or CITER certifying that the Resident has acquired the competencies of the specialty/subspecialty
5. Dismissal following an unsuccessful probation program
6. A decision by the Associate Dean PGME to dismiss a Resident because he or she has not made satisfactory progress, or has engaged in unprofessional conduct, and/or has jeopardized patient care or safety

1. End of Rotation ITER (“Does not meet expectations”, or “borderline” with a requirement for remediation):
A resident may dispute the accuracy of the rating, the fairness of the evaluation process, or raise compassionate or extenuating circumstances. Before commencing an appeal, the Resident is encouraged to discuss any concerns about the evaluation with the rotation supervisor or delegate. The review is a two-stage process. First, the ITER will be reviewed by the Residency Training Committee. If the resident is not satisfied with the RTC’s decision, there is a second level of appeal to the Schulich Postgraduate Appeal Committee. This Committee’s decision is final, and there is no further right of appeal at the University.

2. RTC Decision that Remediation Was Unsuccessful:
A Resident may appeal a decision of the RTC that a remediation period was unsuccessful to the Schulich Postgraduate Appeal Committee on the following grounds:
   a) the RTC did not take into consideration relevant evidence when it made its decision, or
   b) the RTC’s decision cannot be supported on the evidence that was before the RTC when it made its decision.
   c) The Committee’s decision is final and there is no further right of appeal at the University.
3. RTC refusal to complete a FITER/CITER:
If the residency program refuses to complete a FITER certifying that a Resident has acquired the competencies of the specialty, the Resident may request a review of that decision by the Associate Dean PGME. If the Associate Dean confirms the program’s decision the Resident may appeal the Associate Dean’s decision to the Schulich Postgraduate Appeal Committee on the following grounds:

   a) the Associate Dean did not take into consideration relevant evidence when he or she made the decision, or
   b) the Associate Dean’s decision cannot be supported on the evidence that was before him or her.

The Committee’s decision is final and there is no further right of appeal at the University.

4. Dismissal:
A Resident may appeal a dismissal arising from an unsuccessful probation or a decision made by the Associate Dean PGME to dismiss the Resident from the Residency Program to the Schulich Postgraduate Appeal Committee on the following grounds:

   a) the RTC or the Associate Dean PGME did not take into consideration relevant evidence when making the decision, or
   b) the decision made by the RTC or Associate Dean PGME cannot be supported on the evidence that was before the RTC or Associate Dean at the time the decision was made.

A decision by the Committee to deny the appeal may be appealed to the Dean, Schulich School of Medicine & Dentistry.

The Dean’s decision is final and there is no further right of appeal at the University.

MS February 28, 2012.
RESIDENT SAFETY

The Program Director reviews information about the resident safety in general, along with Schulich policies at the program orientation.

Information regarding the health, safety and security resources available to residents is both discussed at Resident Orientation and provided in the orientation material given to residents at the start of their training. In addition, the Wellness Office focuses on the physical, psychological and professional safety of learners, and will thus make residents aware of this policy if concerns are brought forward to that office. Finally, the Office of Medical Affairs reinforces the learning of information related to resident safety by requiring residents to complete online training modules such as the ‘Violence in the Workplace’ module.

The policy governing resident safety related to travel, patient encounters including house calls, after-hours consultations in isolated departments and patients transfers (e.g. medevac) are guided by the Schulich School of Medicine & Dentistry Postgraduate Medical Education Resident Health and Safety Policy, which can be found at http://www.schulich.uwo.ca/medicine/postgraduate/policies

MS June 2012
1. Attendance
   a. Rounds/Seminars/Grand Rounds
      Teaching rounds and seminars are a priority and attendance is mandatory. Time for attendance will be protected from clinical and research responsibilities. Your attendance is expected and will be noted.
      Note: For Seniors combining critical care with a primary specialty (e.g., Anesthesia, Surgery or Emergency Medicine), it will be expected that the 24 month curriculum will be covered in its entirety.
   b. Illness/Leave of Absence
      If you require a leave of absence for health, maternity or other reason, please inform the Office of the Program Director.
      Note that since the Critical Care Western is a two-year program, any leave in excess of six weeks must be made up with equivalent extra time in training in order to meet the training requirements of The Royal College of Physicians and Surgeons of Canada.

2. Vacation Time
   Senior residents shall be entitled to four (4) weeks paid vacation during each year. The Office of the Program Director must confirm all vacation requests. This is best done well in advance. Requests for leave, including vacation, education leave, religious holidays, etc. are required in writing to the Program Director four weeks prior to the requested time and absolutely no later than the 15th day of the preceding month. Submit, in writing, using a ‘Request for Leave Form’. Acceptance for the holiday time will be documented within One45® database. Blank Request for Leave Form can be found on One45 in the “Handouts & Links” section.

3. Conference Time/Professional Leave
   In addition to vacation entitlement, each trainee is allowed up to a maximum of seven working (7) days each year to attend a conference. More time may be available at the discretion of the Program Director. Submit, in writing, using a ‘Request for Leave Form’. Acceptance for the holiday and conference time will be documented within One45® database by the Program Director’s Office. Blank Request for Leave Form can be found on One45 in the “Handouts & Links” section.

4. Stipends
   The Critical Care Western provides the following over the 2-year course of training:
   
   PERSONAL EDUCATION FUND:
   • $1,500 to be used over the entire duration of your Fellowship
   • To be used for Critical Care related courses/meetings/conferences (for example, registration and/or travel expenses)
   • To be used for Critical Care related textbooks

   CCW WILL REIMBURSE THE FOLLOWING OUT-OF-TOWN COURSES/MEETINGS:
   
   Acute Critical Event Simulation (ACES)
   • CCW will reimburse registration and appropriate and reasonable travel expenses
   • Please refer to the attached Expense Reimbursement Policy
   
   Canadian Critical Care Forum (CCCF)
• Resident’s Day registration is complementary
• CCW will reimburse mileage to Toronto
• If you plan to attend the 3 day meeting, your $1500 Personal Education Fund can be used for registration and hotel expenses. Please refer to the attached Expense Reimbursement Policy for allowable expenses

Canadian Critical Care Review (CCCR)
• CCW will reimburse registration, hotel and mileage to Mississauga
• Please take advantage of early registration and block hotel room rate

CCW WILL PAY REGISTRATION FOR THE FOLLOWING LONDON-BASED COURSES:
• Advanced Trauma Life Support - ATLS if not already certified. The Office of the Program Director maintains a listing of possible dates. You also need recent documentation for ACLS training. Dates of available training is maintained by Medical Affairs.
• Western Ultrasound Course
• Airway Course
• Adult Multi-professional Critical Care Knowledge Assessment – MCCKAP

CCW will pay the annual membership fee for the following:
• Canadian Critical Care Society - annual resident/fellow fee expenses for memberships in the Canadian Critical Care Society (CCCS)

RESEARCH REIMBURSEMENT

CCW will reimburse travel expenses to present at a scientific meeting, as follows:
• Up to $1,000 reimbursement for allowable expenses in ONTARIO
• Up to $2,000 reimbursement for allowable expenses in NORTH AMERICA/INTERNATIONAL
• $200 maximum for presentation costs
• PLEASE NOTE CCW will reimburse a maximum of 4 Ontario and 2 North American/ International meetings per year AND only upon pre-approval of your Research Supervisor
• CCW will reimburse up to $1,000 towards your research project. For example, patient chart pulls, software specific to your project. Any expense over $1,000 MUST BE PRE-APPROVED by your Research Supervisor

IF IN DOUBT ABOUT WHAT IS ALLOWABLE FOR REIMBURSEMENT FROM CRITICAL CARE WESTERN, PLEASE CALL DIANE BENTLEY AT EXT 55660

Potential access to further travel funds for residents may be awarded through the Western University Postgraduate Medical Education Office.

5. Salary: MOH trainees
Medical Affairs will handle your salary including benefits. Your salary is determined by the PARO contract guidelines.

6. Medical Affairs Information
Refer to the Internet site of Medical Affairs for detailed information regarding resident orientation, parking and ID badges, call rooms, GroupWise E-mail System and WebAccess, library services, hospital polices and procedures, and much more! This site (and the Western University PGE site) is linked to download the Resident Orientation Handbook (>170 pages). This handbook contains valuable information regarding many other issues, for example hospital life, hospital polices, PARO, etc.
7. **On-Line Journals and Critical Care Info**
   The following critical care journals/info are free access through a Western or LSHC/SJHS desktop computer.

   Critical Care Forum  
   [http://ccforum.com](http://ccforum.com)

   SCCM Critical Care Medicine Journal  
   [http://www.ccmjournal.com](http://www.ccmjournal.com)

   American Journal of Respiratory & Critical Care Medicine  
   [http://ajrccm.atsjournals.org](http://ajrccm.atsjournals.org)

   CHEST  
   [http://www.chestjournal.org](http://www.chestjournal.org)

   Canadian Critical Care Society (Newsletter – Critical Care Rounds)  
   [http://www.canadiancriticalcare.org](http://www.canadiancriticalcare.org)

   Journal of Trauma (Injury, Infection, Critical Care)  
   [http://www.jtrauma.com](http://www.jtrauma.com)

   Current Opinion in Critical Care  
   [http://www.co-criticalcare.com](http://www.co-criticalcare.com)  
   (access these 2 thru LHSC Library via)  
   [https://www.lhsc.on.ca/priv/library](https://www.lhsc.on.ca/priv/library)

   UpToDate  
   [http://www.uptodate.com](http://www.uptodate.com)

   Off campus access to journals can be accessed through the [Western library site](https://www.lhsc.on.ca/priv/library) using your UWO username and password.

8. **Important Dates**
   The following are important dates to remember:

   To be eligible for the fall [RCPSC Critical Care Medicine](http://www.uptodate.com) certification examination your application form for assessment of training for an additional specialty must be received at the College headquarters. Deadlines and fee information can be found at the RCPSC website.

   CCF/CSCS Residents’ Day is just prior to the [Canada Critical Care Forum](http://www.uptodate.com) in Toronto. All Seniors are expected to attend and will be reimbursed for travel costs. Travel costs to attend CCF Residents’ Day are eligible or reimbursement by Critical Care Western program (see “Stipends” above)
9. **Email**

You must use your hospital email address for hospital or university business as per policy. This is the only network that has encryption software and as such, are secure networks. Your emails will be sent to the London Hospital address – it is your responsibility to check it frequently. You will be given a Schulich email address – this can be redirected to your hospital email if you choose, however, please beware that you cannot redirect any of your hospital email.

Created July 1999

Updated: July 2004; July 2005; June 2006; June 2007; December 2007; June 2008; June 2009.DJL; revised June 2010 MS; May 2011 MS; May 2012 MS; June 2013 MS, DB
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Prepared by Victoria Hospital and Victoria & University Hospitals.
### Selective: Chronic Mechanical Ventilation

<table>
<thead>
<tr>
<th>Supervisor:</th>
<th>Dr. David Leasa</th>
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<tbody>
<tr>
<td>Mentors:</td>
<td>Cathy Mawdsley; Dr. Valerie Schulz; Joanne Smith; 2nd On-Call ICU Consultant</td>
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<td>Site:</td>
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### Introduction

This elective is one block in duration. Learning objectives will focus on the interprofessional care of the patient requiring chronic mechanical ventilation (CMV), which includes:

**Prolonged Mechanical Ventilation (PMV)**

The actual or anticipated need for mechanical ventilation in a critical care unit for 21 days or more (invasive or noninvasive; ≥12 hours per day). Also known ‘chronic critical illness’.

**Long-Term Mechanical Ventilation (LTV)**

The actual or anticipated need for any mechanical ventilation beyond the critical care unit for survival or quality of life (invasive or noninvasive; nocturnal only or continuous).

Training objectives specific to this elective are listed below.

### Goals & Objectives

#### Medical Expert

1. Recognize the unique care needs for the CMV patient and implement a focused care plan that optimizes functional abilities and improves quality of life.
2. Apply those practices that may accelerate ‘weaning’ from invasive mechanical ventilation for the PMV patient.
3. Demonstrate practical knowledge and skill in the transition of patients requiring chronic mechanical ventilation between care venues.

#### Knowledge:

- Complications associated with chronic critical illness.
- Environmental and drug-related psychopathology associated with chronic critical illness (e.g. pain, anxiety, sleep deprivation, delirium, drug withdrawal).
- Supportive services integral to the long-term rehabilitation of critically ill patients (physiotherapy, nutritionist, SLP, occupational therapy, social services).
- Methods to care for skin, mouth, eyes and bowels, and to maintain mobility and muscle strength in chronic critical illness.
- Methods of communicating with patients who are unable to speak.
- Nutritional assessment in chronic critical illness.
- Causes, prevention and management of critical illness polyneuropathy and myopathy.
- Consequences of immobilization and mobilization techniques.
- Cough assist activities (e.g., breath stacking, in/exsufflator).
- Management of tracheostomy care and avoidance of complications outside the ICU.
- Long-term ventilation (both invasive and non-invasive) outside the ICU environment (e.g., home).
- Practices that reduce hospital/ICU readmission, lessen morbidity and improve quality of life for the LTV.
• Basic methods for assessing or measuring quality of life.
• Basic understanding of the functioning of ‘home’ ventilators: e.g., PB 560 or Trilogy 200.
• Basic understanding of the functioning of ‘bi-level’ ventilators: e.g., ResMed VPAP III.
• Basic practical knowledge of full mask interfaces for NIV.
• Transition processes for persons requiring PMV/LTV to the ‘right’ care venue to help optimize both system capacity and patient quality of life. For example:
  - Transition from ‘at-risk of’ respiratory failure to LTV support;
  - Transition from PMV within an ICU to ventilator liberation or LTV care;
  - Transition from institutional care to care within the community (e.g., home/assisted living);
  - Transition from pediatric to adult care;
  - Reverse transition to acute critical care due to worsening medical condition/new onset of illness;
  - Transition from active treatment to end of life care.

Skills
• Able to propose, implement and modify a strategy for weaning the patient requiring PMV.
• Able to propose, implement and modify a strategy for adequate sleep and ventilator rest in PMV.
• Able to change a tracheostomy tube safely and electively.
• Able to communicate effective ventilator prescriptions to the RRT (for both invasive and non-invasive ventilators).
• Demonstrate proficiency in conversations at the end of life, including discussing overall prognosis, patients' goals and values, and resuscitation status.

Communicator
• Provide effective dialogue with patients and their surrogates regarding long-term outcomes in chronic critical illness (including prognostication and end-of-life conversations), in terms that they can easily understand.
• Honestly and explicitly convey the anticipated demands of treatment and the future functional dependence patients will probably have.
• Participate effectively in the education of patients/families regarding chronic mechanical ventilation.

Collaborator
• Effectively function within the inter-professional care model to provide quality care for the patient with chronic critical illness.
• Work with colleagues to minimize patient and family distress.
• Collaborate with others in outreach processes, including within the chronic ventilator care outpatient clinic, to provide ongoing proactive support for the LTV patient.

Manager
• Recognize criteria to enable the ‘safe’ transition of individual LTV patients to other environments.
• Demonstrate effective information exchange with other professionals to facilitate patient transition.
• Liaise with medical and nursing staff in other departments to ensure optimal communication and continuing care prior to ICU discharge.

Health Advocate & Scholar
• Be able to educate patients and their families on the ‘safe’ care of the LTV patient outside of the ICU and hospital environments, including care at home.
Professional

- Patients undergoing chronic mechanical ventilation remain at significant risk of dying, hence the importance of addressing goals of care and to plan for and treat predictable crises. Recognize and appropriately respond to ethical issues encountered in the care of CMV patients with honesty and compassion.

Responsibilities
The Senior is responsible for patient care activities in Bay 6 (EICU) of the MSICU at University Hospital during the weekday hours. There are no nighttime or weekend call responsibilities.

The Senior will assess patients from 0800-1100 hours. Plans will be made, and notes will be written. The ‘Second Call’ ICU consultant will make rounds with the Senior at the bedside between 1100-1200 hours (or at another mutually convenient time) to review the decisions.

The Senior will also be expected to: lead inter-professional EICU patient care rounds with the collective staff; attend ‘Pain and Symptom’ consult rounds (e.g., delirium, sleep management) with Dr. Valerie Schulz; attend Tuesday afternoon Long-Term Ventilation Clinics with Dr. David Leasa and Joanne Smith (RRT) (these are usually held weekly on Tuesday afternoons in the 4th floor outpatient clinic); perform assessments of patients considered to be candidates for EICU admission; and assess LTV patients, with staff, at Parkwood Hospital.

Evaluation
It will be expected that the Senior meet and review with the ‘Second Call’ ICU Consultant each Friday for a weekly performance feedback. It is the responsibility of the Senior to arrange this feedback and enter/store the information within their Portfolio. Summary feedback will be provided at the end of the block along with an exit interview using the CMV In-Training Evaluation Report (CMV-ITER).

Selected References

Selected Resources:

3. College of Respiratory Therapists of Ontario. Optimizing Respiratory Therapy Services 

DJL July 2009
Revised: DJL and MS June 2010, MS June 2011, DJL May 2012
SELECTIVE: CRITICAL CARE ULTRASOUND

Contact & Supervisor: Dr. Robert Arntfield
Sites: Critical Care Trauma Centre (VH) and Emergency Room (VH)

Introduction

This elective is one block in duration. It is open to one resident on a first come, first served basis that is negotiated with Dr. Arntfield. Learning objectives will focus on the skills of acquisition and interpretation of point of care ultrasound images in critically ill patients in addition to non-medical expert CanMEDS roles.

Goals & Objectives

Medical Expert

General Learning Objectives

- Learn and apply basic ultrasound physics, machine controls and transducers in acquiring ultrasound images in critically ill patients.
- Appreciate the clinical syndromes where general critical care ultrasound and critical care echocardiography may play a pivotal role in guiding diagnosis and management.
- Achieve comfort in generating quality ultrasound images across different organ systems in a critically ill patient.
- Understand the limitations of ultrasound technology, its user-dependence as well as common imaging artifacts and imaging pitfalls.
- Learn how to integrate point of care ultrasound findings into the care trajectory of the critically ill patient.
- Achieve comfort in a teaching role with junior residents in demonstrating some fundamental ultrasound teaching, especially as it relates to procedural guidance for vascular access.
- Learn to identify the role of cleaning and proper storage of point of care ultrasound machines as part of his/her upkeep and preservation in a busy ICU environment.
- Appreciate the importance of a quality assurance program as part of patient safety and proper training for point of care ultrasound and other user-dependent methods of patient care.
- Identify the role for diagnostic studies from other consultant imaging specialists for more complex clinical questions or when point of care imaging is unable to answer the clinical questions at hand.

Expert Focused Learning Objectives

Knowledge

- Factors influencing image acquisition quality when imaging critically ill patients
- Causes and ultrasound findings in circulatory failure due to various causes including:
  - Left ventricular failure
  - Hypovolemia
  - Acute right sided heart failure (cor pulmonale)
  - Cardiac tamponade
  - Acute massive left sided valvular regurgitation
  - Circulatory arrest
• Causes and ultrasound findings in respiratory failure due to various causes including:
  o Pleural effusion
  o Pneumothorax
  o Alveolar-interstitial syndrome (CHF, ARDS)
  o Normal aeration pattern (PE, obstructive lung disease)
  o Lobar collapse
• Requirements for acceptable cardiac ultrasound images and anatomic structures seen when images are obtained from the parasternal, apical and subcostal positions
• Knowledge of ultrasound artifacts, including mirror image, enhancement, edge, side lobe, ring down and reverberation artifacts
• Understanding of potential mimics, artifactual or anatomic, of common pathology (false positives) in both cardiac and general critical care ultrasound applications
• Understanding the difference between volume status and volume responsiveness
• Knowledge of the requirements for positive, negative and indeterminate ultrasound studies when assessing for binary clinical questions such as pleural fluid, pericardial fluid, pneumothorax
• Knowledge of qualitative and quantitative approaches to evaluating volume responsiveness, cardiac output, left ventricular function, pericardial fluid, pleural effusion, pneumothorax
• Understanding of the physics of Doppler, the distinction between continuous wave (CW) and pulse wave (PW) Doppler, aliasing, pulse repetition frequency and the Nyquist limit.
• Knowledge on how to use Qpath to generate reports and review feedback.
• Identify suitable patients for point of care transesophageal echocardiography
• Identify the indications for escalation to diagnostic imaging specialists

Skills & Behaviours

• Generate interpretable general critical care ultrasound images in the assessment for pneumothorax, pleural effusion, ascites.
• Generate interpretable basic critical care echocardiography images from multiple transthoracic windows, including the parasternal, apical and subcostal points of view.
• Accurately recognize (interpret) the ultrasound findings consistent with pneumothorax, pleural effusion and ascites
• Accurately recognize (interpret) the echocardiographic findings consistent with pericardial effusion, various states of LV function, cor pulmonale, massive valvular pathology and a volume responsive IVC.
• Demonstrate competence in cannulating various vessels (central veins, peripheral veins, peripheral arteries) with ultrasound guidance and sterile technique.
• Use echocardiography to assist in the resuscitation and prognosis of patients in cardiac arrest.

Communicator

• Verbal communication of ultrasound findings to care team, including nurse and resident.
• Document all ultrasound findings in patient chart either by hand-written note or through a Qpath generated report (preferred).
• Provide point of care ultrasound support to ward patients on the CCOT service who may benefit from point of care assessment of circulatory or respiratory failure.
### Collaborator

- Establishes trusting relationships with the nursing staff, residents and the patients.
- Liaise professionally and respectfully with all consultant services.
- Propose and discuss (with the patient’s care team) appropriate clinical management plans in response to findings on point of care ultrasound.

### Manager

### Health Advocate

- Recognizes that ultrasound is one of many tools to guide diagnostics and therapeutics in an ICU setting.
- Appreciates that patient positioning and patient exposure for ultrasound exams may be stressful or disruptive for patients.
- Patient safety: Thoroughly clean the machine and transducers after each use, using Cavi-Wipes.
- Landmark safe and high yield locations for chest drainage or abdominal drainage procedures using ultrasound.

### Scholar

### Professional

- Defer making interpretations on ultrasound images that are either of suboptimal quality or fall outside of the capabilities or scope of the resident’s training and experience.

### Responsibilities

The resident(s) carrying out his/her critical care ultrasound elective are responsible for providing point of care ultrasound services in the CCTC and, when possible, to other critically ill patients at Victoria Hospital during weekday hours. There are no nighttime or weekend call responsibilities. Given there is no known harm from ultrasound technology, ultrasound exams may be carried out liberally for both educational and diagnostic/therapeutic and procedural (when indicated) purposes. Patient selection for ultrasound may be driven by either a CCTC team member request or be self-initiated by the resident on service. If ultrasound exams are elective and educational in nature, they are not to delay or interfere with any aspects of care (nursing, medical, family) for the patient.

Ultrasound images obtained must all be archived appropriately using methods well described in tutorials made available to the resident. Further, meticulous organization of these studies within Qpath is expected in order to facilitate Dr. Arntfield’s oversight as well as to track the number of studies being acquired by the resident across each indication. Benchmarks for each indication will be determined at the beginning of each rotation for each resident.
Upon completion of a non-educational ultrasound examination, the resident must communicate the findings to the medical team directly. Review of images with Dr. Arntfield may occur first if required. Direct image review is encouraged between the resident and the CCTC team member. A written report must also be inserted in to the patient chart.

The resident will be responsible for completing a five-hour critical care echocardiography curriculum prior to starting his/her rotation. An additional nine hours of content must be reviewed by the resident in the first two weeks of the rotation.

At regular intervals, an in-person image review and hands on training with the rotation supervisor (Dr. Arntfield) will occur. This will supplement the wireless oversight of images being acquired via the hospital-based point of care ultrasound management software (Qpath).

At the conclusion of the rotation, the resident will be expected to contribute two small projects.

Firstly, a case write up and accompanying images for the “case of the month” on the point of care ultrasound webpage www.uwosono.ca.

Second, will be to lead a lunchtime image review session for ICU residents and staff, highlighting interesting cases and learning points from the past month.

**Evaluation**

The trainee will be evaluated with a number of tools.

**Qualitatively:** A majority of individual ultrasound scans will be evaluated either in person or by using the electronic quality assurance software (Qpath) whereby reports on quality are emailed to the rotator. At the end of each week, an in person review session will occur, reviewing the week’s work and focusing on bridging gaps in ultrasound image generation, interpretation or clinical integration.

**Quantitatively:** At the beginning of each block, the resident and Dr. Arntfield will decide on an appropriate number of studies within each indication to be completed. In general, these will correspond to 40 cardiac studies and 25 each of thoracic and pleural studies. Studies will be tracked automatically by the image archiving software (Qpath). Some variation may occur if holidays or conference time is taken by the rotator. Failure to achieve these targets will result in a non-satisfactory evaluation.

**Summary feedback** will be provided at the end of the block along with an exit interview. The In-Training Evaluation Report (One45), based on CanMEDS roles, will be reviewed with the trainee, signed, and forwarded to the office of the Critical Care Program Director.

Created by RA June 2012; modified by RA, MS June 2012
SELECTIVE: ICU PALLIATIVE CARE

Introduction

Critical Care Seniors (residents and fellows) may complete a one block elective rotation in palliative medicine during their residency. This elective will highlight the Collaborator role because of its multiprofessional nature. It will also emphasize the Health Advocate roles as the patients’ and families’ belief and values are an important aspect of end of life care decision making. Overall, this elective will allow for broad exposure to pain and symptom management, including delirium in critically ill patients as well as the care of the terminally ill patient. The supervisor will review the goals and objectives at the beginning of the rotation.

Medical Expert

- Access and apply relevant information to clinical practice
- Demonstrate effective consultation services with respect to patient care, education and legal opinions
- Describe the ethics, law and policy governing palliative care delivery in Canada

Symptom Management

Pain
- Assess different types of pain and pain syndromes and demonstrate appropriate management
- Describe the pharmacology of NSAIDs, opioids, and adjuvant drugs such as medications used for neuropathic pain
- Describe opioid tolerance, physical dependence, and addition
- Demonstrate non-pharmacologic approaches to pain management

Dyspnea, delirium, nausea and vomiting, constipation, bowel obstruction, decubitus ulcers, anxiety, depression, etc.
- Discuss the pathophysiology and treatment of these symptoms

Emergencies
- Residents will be involved in the assessment and management of palliative emergencies as they arise in the patients during the rotation which may include: hypercalcemia, severe dyspnea, severe pain, spinal cord compression, SVC syndrome, pathologic fractures, seizures and hemorrhage in the palliative setting.

Communicator

- Establish therapeutic relationships with patients/families
- Gather information about patient’s and families beliefs, concerns, expectations and illness experience. Provide information to a patient and family so that it is understandable, and encourages discussion and participation in decision making.
- Demonstrate effective listening skills.
• Recognize personal limitations – for example the ability to ask for assistance when exposed to new situations or information, whether it be ethical, clinical, investigational or management strategies

**Collaborator**

• Palliative care involves a multiprofessional team that the resident must effectively collaborate with on a daily basis
• Demonstrate timely and appropriate consultation skills directed towards various medical specialties contributing to the patients care.

**Manager**

• Work with consulting services to optimize patient care.
• Describe the role of palliative care in Canada.

**Health Advocate**

• Respond to individual patient health needs and identify opportunities for advocacy for individual patients.
• Appreciate the possibility of conflict inherent in role as health advocate for a patient and role of manager/gatekeeper within a community.

**Scholar**

• Critically appraise sources of medical information and incorporate evidence based medicine and ethical and legal principles in formulating treatment plans

**Professional**

• Recognize and respond to ethical issues around end-of-life care in critically ill patients.

**Evaluation**

Residents/fellows will be evaluated on their assessment and care of the patients, relationships with patients, families and interdisciplinary team members. The In-Training Evaluation Report will be reviewed with the resident at the time of the exit interview and forwarded to the office of the Program Director, Critical Care Western.

MS, VS May 2012
ELECTIVE: ANESTHESIA

Contact: Dr. Jeff Granton
Sites: LHSC-University Hospital (MSICU)  
       LHSC-Victoria Hospital (CCTC)  
       St. Joseph’s Health Centre (SJHC)

Introduction

This elective rotation is intended for Critical Care Medicine Seniors (residents and fellows) who wish to enhance the breadth of their critical care experience through the perioperative management of patients undergoing anesthesia. A two-month elective is encouraged to meet the objectives listed below, however a one-month elective will be considered.

Goals & Objectives

Medical Expert

The resident will acquire the basic knowledge, skills and attitudes to be able to recognize, investigate, and manage critically ill patients from the pre-operative assessment, through the intraoperative administration of anesthesia and the post-operative recovery. At the completion of the rotation, the resident should possess a working knowledge of:

- The preoperative factors that may influence the operative or postoperative care of the patient
- Assessment of the airway including the use of the Mallampati score
- The basic principles of intraoperative management of patients, including maintenance of anaesthesia with nitrous oxide, inhalational anesthetics, intravenous anesthetics and narcotics
- The major regional techniques including indications and contraindications
- The laryngoscopy view using the Cormack grading system
- The indications, contraindications, limitations, and complications of endotracheal intubation (oral/nasal), cricothyrotomy, tracheostomy, fibreoptic intubation and transtracheal jet ventilation
- An approach to the patient with a difficult airway (including the multiple trauma and head injured patient)
- The anaesthetic apparatus for respiratory and cardiovascular support in the emergency situation
- The pharmacology of specific anaesthetic agents (thiopental, propofol, ketamine, narcotics, benzodiazepines), including the potential role of these agents in the emergency situation (the trauma patient, the patient with increased intracranial pressure, the hemodynamically unstable patient)
- The pharmacology of the neuromuscular blocking agents (both non-depolarizing and depolarizing agents)
- The postoperative management of patients both in the recovery room and the Intensive Care Unit, including the transfer between the operating room and ICU

The knowledge base will also include an appreciation of the basic sciences relevant to anesthesia including physiology and pharmacology. The professional characteristics to be demonstrated and developed include responsibility, intellectual curiosity, self-appraisal, compassion, and the ability to communicate with peers and
patients, and a commitment to continuing medical education. The skills to be demonstrated include the ability to:

- Maintain an open airway in nonintubated unconscious patients, ventilate and oxygenate a patient using a bag and mask, and the laryngeal airway
- Perform oral endotracheal intubation
- To monitor neuromuscular blockade using a nerve stimulator

### Communicator
- Demonstrate consideration and compassion in communicating with patients and families
- Provide accurate information appropriate to the clinical situation.
- Communicate effectively with medical colleagues, nurses, and paramedical personnel in inpatient, outpatient, and operating room environments.
- Demonstrate appropriate oral and written communication skills.
- Ensure adequate information has been provided to the patient prior to undertaking invasive procedures.

### Collaborator
- Demonstrate ability to function in the clinical environment using the full abilities of all team members.

### Manager
- Demonstrate knowledge of the management of operating rooms.
- Record appropriate information for anesthetics and consultations provided.
- Demonstrate principles of quality assurance, and be able to conduct morbidity and mortality reviews.

### Health Advocate
- Recognize the opportunities to advocate for patient safety and new health care practices in general, in the operating room.

### Scholar
- Develop, implement, and monitor a personal continuing education strategy.
- Critically appraise sources of medical information.
- Facilitate learning of patients, students, and other health professionals.

### Professional
- Include the patient in discussions concerning appropriate diagnostic and management procedures.
- Respect the opinions of fellow consultants and referring physicians in the management of patient problems and be willing to provide means whereby differences of opinion can be discussed and resolved.
- Show recognition of limits of personal skill and knowledge by appropriately consulting other physicians and paramedical personnel when caring for the patient.
- Establish a pattern of continuing development of personal clinical skills and knowledge through medical education.

### Responsibilities

The Senior is expected to participate in all aspects of the anesthetic management of patients during their elective including the preoperative assessment, the intraoperative administration of anesthesia and the management of
postoperative complications. The resident may be expected to participate in anesthesia call during their rotation, especially during the two-month elective.

**Evaluation**

All faculty supervisors are encouraged to discuss performance on a regular basis with the Senior involved. In addition, all supervisors will be asked for feedback on the Senior towards the end of their rotation and an exit interview will be scheduled with the rotation supervisor. The Critical Care Senior In-Training Evaluation Report (ITER) will be reviewed, signed, and forwarded to the office of the Program Director, Program in Critical Care.

Created: RJB 04.07.27
Updated: DJL July 2006; June 2008; MS and JG June 2010
ELECTIVE: CLINICAL CARDIOLOGY ROTATION

Contact & Supervisor: Dr. Keith Finnie
Sites: LHSC-University Hospital & Victoria Hospital

Introduction

For “off-service” trainees from training programs other than Cardiology (including Internal Medicine, Critical Care, Anesthesiology, Family Medicine +/- Emergency Medicine, Emergency Medicine etc.)

Goals & Objectives

To provide training and experience in the approach to, and appropriate management of, patients with a broad range of acute and chronic cardiac conditions in both the inpatient and ambulatory care settings. This will include the performance of consultations and provision of appropriate consultative reports on patients referred from other physicians/services for cardiac evaluation. The experience will be adjusted in the context of the trainee’s parent program to emphasize the skills and competencies of particular or special relevance to the discipline concerned.

Demonstration of an appropriate level of understanding and competence in all of the following areas:

<table>
<thead>
<tr>
<th>Medical Expert</th>
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<tbody>
<tr>
<td>At the end of the rotation, the trainee will have:</td>
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<tr>
<td>• developed evidence-based approaches to the investigation and management of patients presenting with:</td>
</tr>
<tr>
<td>• chest pain</td>
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<tr>
<td>• heart failure/dyspnea</td>
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<tr>
<td>• disturbances of cardiac rhythm (e.g. bradycardia/tachycardia)</td>
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<tr>
<td>• hypotension/shock/cardiac arrest</td>
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<tr>
<td>• hypertensive crisis</td>
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<tr>
<td>• developed evidence based management strategies for the following diseases:</td>
</tr>
<tr>
<td>• acute myocardial infarction/complications/risk stratification</td>
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<tr>
<td>• unstable angina – including appropriate triage</td>
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<tr>
<td>• acute pulmonary edema/chronic heart failure</td>
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<tr>
<td>• cardiac arrest/life threatening arrhythmias</td>
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<tr>
<td>• disorders of cardiac rhythm/conduction</td>
</tr>
<tr>
<td>• shock/hypotension</td>
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<tr>
<td>• hypertensive urgency/emergency</td>
</tr>
<tr>
<td>• common forms of valvular heart disease – including endocarditis</td>
</tr>
<tr>
<td>• pericardial diseases (pericarditis, tamponade)</td>
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<tr>
<td>• atherosclerosis – recognition, primary/secondary prevention</td>
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</tbody>
</table>
demonstrated proficiency in the following procedures:

- EKG interpretation, ischemia/infarction, rhythm + conduction disease, hypertrophy, repolarization abnormalities (e.g. QT prolongation)
- chest x-ray interpretation as it pertains to cardiovascular disease (e.g. chamber enlargement, pulmonary edema, signs of aortic dissection)
- resuscitative skills according to ACLS guidelines
- access to arterial and venous circulation, insertion and interpretation of data from Swan Ganz catheterization
- knowledge of the indications for and management of patients with a temporary pacemaker and, if possible, technical proficiency with its placement.

understand the physiology of:

- cardiac cycle (systole/diastole) with corresponding phases of cardiac chamber pressures and valve status, electrical activation
- normal cardiac rhythm and conduction
- cardiovascular circulation – including maintenance and regulation of blood pressure, heart rate, and rhythm
- determinants of myocardial oxygen demand

understand the pathophysiology of:

- atherosclerosis
- acute coronary syndromes/acute myocardial infarction and unstable angina
- complications of acute MI
- stable/chronic angina pectoris
- rhythm and conduction disturbances
- syncope
- congestive heart failure/acute pulmonary edema
- shock-cardiogenic versus noncardiogenic
- hypertensive emergencies
- cardiac tamponade
- basic congenital defects (ASD, VSD, coarctation)

understand the pharmacology of:

- beta blockers
- calcium antagonists
- nitrates anticoagulants/antithrombotic agents
- thrombolytic agents
- antiplatelet agents (ASA, clopidogrel, ticlopidine, glycoprotein IIB/IIIA inhibitors
- diuretics
- digoxin
- angiotensin converting enzyme inhibitors/angiotensin receptor blockers
- antiarrhythmic agents
- inotropic agents
- antihypertensive drugs/vasodilators
• anticholesterolemic/antilipemic agents
• antibiotics as they apply to cardiac disease

Also, an understanding of the indications, limitations and risks associated with the following procedures:
(NB Technical training will not be a requirement for the Internal Medicine trainee)
• Holter monitor/loop recorders
• Exercise EKG - stress test
• 2D echocardiography/Doppler
• myocardial perfusion imaging and radionuclide angiography
• cardiac catheterization/angiography
• revascularization strategies

Communicator
By the end of the rotation, the trainee will have demonstrated:

1. the ability to obtain a thorough yet relevant history from patients with cardiovascular disease
2. skill in presentation and discussion of cardiovascular topics at teaching and patient care rounds
3. achievement of the overall Program Objectives at a level appropriate to the level of training.

Collaborator
During the rotation, the trainee will:

1. participate in the multidisciplinary team management of cardiology patients
2. recognize the roles of the following team members
   • cardiologist (invasive and noninvasive), cardiac surgeons, resident/consulting physicians and emergency room physicians (both at LHSC and other referring or accepting institutions),
   • nursing staff, technicians in various cardiac diagnostic services (e.g. EKG, echocardiography), respiratory technicians, social workers, physical and
   • occupational therapists, nutritionists, pharmacists, secretary and support staff,
   • community care providers.

Manager
During the rotation, the trainee will fulfill the role of manager at a level appropriate to the level of training and in accordance with the overall Program Objectives.

Health Advocate
On completion of the rotation, the trainee will:

1. understand the impact of economic and social factors which predispose and/or exacerbate cardiovascular disease
2. understand the importance of preventive strategies in cardiovascular disease particularly as they relate to:
   • primary/secondary prevention of atherosclerosis including modification of smoking, hypertensive, diabetic, hyperlipidemic risk factors
   • prevention of cardiac thromboembolism
- recognition and treatment of hypertension to prevent complications of MI, stroke, renal dysfunction, CHF
- antibiotic prophylaxis to prevent endocarditis
- secondary prevention of asymptomatic LV dysfunction and CHF

3. have demonstrated appropriate attention to prevention counseling in patient encounters

Scholar

By the end of the rotation, the trainee will:

1. understand the scientific evidence supporting investigation and management strategies in cardiovascular disease.
2. have demonstrated critical review of the literature surrounding management of patients with cardiovascular disease.

Professional

During the rotation, the trainee will demonstrate professional behaviour appropriate to the level of training and in accordance with the overall Program Objectives.

By the end of the rotation, the trainee will understand the ethical issues surrounding:

- care of critically and terminally ill patients.
- physical limitations for patients with severe cardiac disease (e.g. driving, occupation) and requirements to inform various licensing authorities.

Responsibilities

The trainee will meet the objectives described through effective participation in the following activities:

1. Attendance at cardiology ambulatory clinics as assigned by the rotation mentor/supervisor.
2. Performance, review and follow-up of inpatient consultations.
3. Assessment and follow up of pre- and post-op cardiac surgical patients on the surgery ward and in the Intensive Care Unit.
4. Interpretation and review of routine diagnostic ECGs and Holter monitor recordings.
5. Performance and interpretation of exercise electrocardiography (stress testing).
6. Participation in the regularly scheduled educational and clinical activities of the Division, including on-call responsibilities as assigned/approved by the Chief Resident or Division Chief.

Evaluation

All faculty supervisors are encouraged to discuss performance on a regular basis with the Senior involved. In addition, all supervisors will be asked for feedback on the Senior towards the end of their rotation and an exit interview will be scheduled with the rotation supervisor. The Critical Care Senior In-Training Evaluation Report (ITER) will be reviewed, signed, and forwarded to the office of the Program Director, Program in Critical Care.
**ELECTIVE: CARDIAC CARE UNIT**

Contact & Supervisor: Dr. Kumar Sridhar

Sites: LHSC-University Hospital

**Introduction**

For “off-service” trainees from training programs other than Cardiology (including Internal Medicine, Critical Care, Anesthesiology, Family Medicine +/- Emergency Medicine, Emergency Medicine etc.)

**Goals & Objectives**

<table>
<thead>
<tr>
<th>Medical Expert</th>
<th>OBJECTIVES</th>
<th>STRATEGIES</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Develops clinical expertise to assess, diagnose and triage patients with suspected acute cardiac conditions</td>
<td>• Assess patients referred from the ER and in-patient wards at LHSC</td>
</tr>
<tr>
<td>2.</td>
<td>Develops skills to interpret diagnostic tools (e.g. ECG, CXR) used in acute cardiac patients</td>
<td>• Review all admissions and consultations with the Attending or On-Call Cardiologist</td>
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<tr>
<td>3.</td>
<td>Develops knowledge of therapeutic agents used to treat acute cardiac patients</td>
<td>• Attend daily sign-in rounds</td>
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<tr>
<td>4.</td>
<td>Develops appropriate management plans and priorities for individual patients</td>
<td>• Round daily in the CCU on all patients and make appropriate management decisions</td>
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<tr>
<td>5.</td>
<td>Recognizes, identifies and manages complications of acute coronary syndromes (ACS)</td>
<td>• Review all relevant laboratory data on CCU patients including ECG, chest X-ray, echocardiograms and cardiac catheterizations</td>
</tr>
<tr>
<td>6.</td>
<td>Learns indications for and acquires experience in invasive monitoring including arterial lines, pulmonary artery catheters and intra-aortic balloon pumps</td>
<td>• Arrange diagnostic tests as indicated for individual patients</td>
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<tr>
<td>7.</td>
<td>Learns the indications for temporary pacing in acute cardiac patients</td>
<td>• Determine priorities for admission to and transfer from the CCU</td>
</tr>
<tr>
<td>8.</td>
<td>Learns to risk stratify patients in the short and long term and the roles of non-invasive and invasive investigations</td>
<td>• Respond to cardiac arrests as a member of the Code Blue Team</td>
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<td>9.</td>
<td>Learns secondary prevention strategies</td>
<td>• Attend other teaching rounds including Academic Half Day</td>
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<thead>
<tr>
<th>Communicator</th>
<th>OBJECTIVES</th>
<th>STRATEGIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Communicates appropriately with patients</td>
<td>• Give clear explanations to patients and family using appropriate terminology</td>
</tr>
<tr>
<td>2.</td>
<td>Communicate with patient’s family</td>
<td>• Answer questions from patients and their families with patience</td>
</tr>
<tr>
<td>3.</td>
<td>Communicates with on-call and attending cardiologists</td>
<td>• Listen to the views of nurses and other allied healthcare professionals</td>
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<tr>
<td>4.</td>
<td>Communicates with other nursing and allied healthcare staff</td>
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</tbody>
</table>
5. Prepares concise histories and physicals and daily progress notes
6. Prepares concise, lucid transfer and discharge summaries with all relative information

<table>
<thead>
<tr>
<th>Collaborator</th>
<th>OBJECTIVES</th>
<th>STRATEGIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Works closely with the attending cardiologist ensuring clear lines of communication</td>
<td>• Respect roles of all individuals on the patient care team</td>
<td></td>
</tr>
<tr>
<td>2. Works closely and provides appropriate supervision to junior medical staff</td>
<td>• Collaborate with nursing and clerical staff in arranging patient admissions, transfers and discharges</td>
<td></td>
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<tr>
<td>3. Works closely with nursing and allied healthcare staff</td>
<td>• Work with ward cardiology team to ensure efficient transfers of care</td>
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<td></td>
<td></td>
<td>• Perform tasks reliably and effectively</td>
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<thead>
<tr>
<th>Manager</th>
<th>OBJECTIVES</th>
<th>STRATEGIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Uses the CCU bed resources appropriately for new admissions, balancing patient needs/priority and bed availability</td>
<td>• Prioritize admissions according to acuity and resource needs</td>
<td></td>
</tr>
<tr>
<td>2. Assigns appropriate priority for patient transfers from other hospitals</td>
<td>• Review and prioritize status of patients awaiting transfer from other hospitals</td>
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<tr>
<td>3. Learns cost effectiveness of various therapeutic interventions.</td>
<td>• Ensure prompt transfer of stable patients from the CCU</td>
<td></td>
</tr>
<tr>
<td>4. Understands cost effectiveness regarding risk stratification using invasive and non-invasive techniques</td>
<td>• Work in close conjunction with the CCU nursing staff to ensure appropriate patient transfer</td>
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<tr>
<td></td>
<td></td>
<td>• Have consideration for cost-benefit issues in choosing diagnostic and therapeutic strategies</td>
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<td></td>
<td></td>
<td>• Make effective use of information technology (Powerchart, MUSE) in obtaining results of investigations</td>
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<td></td>
<td></td>
<td>• Arrange appropriate physician coverage/backup during absences</td>
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<thead>
<tr>
<th>Health Advocate</th>
<th>OBJECTIVES</th>
<th>STRATEGIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Educates patients and families about compliance and healthy behaviour patterns</td>
<td>• Encourage healthy behaviour patterns</td>
<td></td>
</tr>
<tr>
<td>2. Educates patients and families about risk</td>
<td>• Promote roles of allied health professionals (e.g. dietitian, social worker, physiotherapist) in patient</td>
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</table>
### Scholar

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>STRATEGIES</th>
</tr>
</thead>
</table>
| 1. Increases knowledge base by general cardiovascular reading Uses information technology (e.g. Medline, Internet) to rapidly update knowledge base | • Attend sign-in rounds  
• Participate in “bottom line” article reviews at sign-in rounds  
• Attend Academic Half Day and other scheduled educational activities of the training program  
• Schedule reading timetable and comply with schedule  
• Utilize computer access in the CCU for information on the Internet  
• Maintain a spirit and attitude of curiosity and inquiry |
| 2. Prepares and presents topics and cases as requested | |
| 3. Teaches junior house staff | |
| 4. Teaches nurse and allied healthcare professionals | |

### Professional

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>STRATEGIES</th>
</tr>
</thead>
</table>
| 1. Develops insight into own strengths and weaknesses | • Ask for advice or assistance in appropriate situations  
• Be prepared to accept and respond appropriately to constructive criticism  
• Use the attending staff as mentors and role models  
• Obtain properly informed consent for diagnostic and therapeutic procedures  
• Explain patient involvement in research protocols and obtain consent where appropriate  
• Discuss futility of care and end of life issues frankly and compassionately with patients and/or families |
| 2. Delivers evidence-based care with integrity, honesty and compassion | |
| 3. Understands the professional, legal and ethical codes by which physicians are bound | |

### Evaluation

All faculty supervisors are encouraged to discuss performance on a regular basis with the Senior involved. In addition, all supervisors will be asked for feedback on the Senior towards the end of their rotation and an exit interview will be scheduled with the rotation supervisor. The Critical Care Senior In-Training Evaluation Report (ITER) will be reviewed, signed, and forwarded to the office of the Program Director, Program in Critical Care.

Department of Medicine, DJL 04/07/27
Updated: 06/07/01
ELECTIVE: TRAUMA

Contact & Supervisor: Dr. Neil Parry

Sites: LHSC – Victoria Hospital

Introduction

This elective rotation is intended for Critical Care Medicine Seniors (residents and fellows) who wish to enhance the breadth of their critical care experience through the management of critically ill trauma patients.

Goals & Objectives

Medical Expert

The resident will acquire the basic knowledge, skills and attitudes to be able to recognize, investigate, and manage critically ill trauma patients. At the completion of the rotation, the resident should possess a working knowledge of:

1. Identify the criteria for a Trauma Team Activation
2. Identify the correct initial sequence of priorities to be followed in assessing the multiple-injured patient.
3. Outline the primary and secondary evaluation surveys used to assess the multiple-injured patient.
4. Identify diagnostic and therapeutic actions for treating specific traumatic injuries as outlined in the ATLS manual
5. Demonstrate an understanding of the pathophysiologic effect of blunt and penetrating trauma.
6. Demonstrate the knowledge and ability to effectively manage the ICU care of a patient with complex multisystem injuries.

The knowledge base will also include an appreciation of the basic sciences relevant to trauma including physiology and pharmacology.

The professional characteristics to be demonstrated and developed include responsibility, intellectual curiosity, self-appraisal, compassion, and the ability to communicate with peers and patients, and a commitment to continuing medical education.

The skills to be demonstrated include the ability to:

1. Manage the airway including intubation of a trauma patient in cervical spine precautions
2. Insertion of a thoracostomy tube
3. Diagnostic peritoneal lavage
4. Closure of lacerations
5. Initial stabilization of long bone and pelvic fractures
6. Apply ‘Focused Assessment with Sonography in Trauma’ (FAST)

Communicator

- Demonstrate consideration and compassion in communicating with patients and families.
- Provide accurate information appropriate to the clinical situation.
- Communicate effectively with medical colleagues, nurses, and paramedical personnel
- Demonstrate appropriate oral and written communication skills.

### Collaborator
- Demonstrate ability to function in the clinical environment using the full abilities of all team members.

### Manager
- Demonstrate knowledge of the management of a trauma patient from the emergency department to trauma unit to operating room
- Demonstrate principles of quality assurance, and be able to conduct morbidity and mortality reviews at monthly trauma seminars.

### Health Advocate
- Recognize the opportunities to advocate for trauma preventive measures both medical and legal (e.g. the use of helmets and seat belts).

### Scholar
- Develop, implement, and monitor a personal continuing education strategy.
- Critically appraise sources of medical information.
- Facilitate learning of patients, students, and other health professionals.

### Professional
- Include the patient and family in discussions concerning appropriate diagnostic and management procedures.
- Respect the opinions of fellow consultants and referring physicians in the management of patient problems and be willing to provide means whereby differences of opinion can be discussed and resolved.
- Show recognition of limits of personal skill and knowledge by appropriately consulting other physicians and paramedical personnel when caring for the patient.
- Establish a pattern of continuing development of personal clinical skills and knowledge through medical education.

### Responsibilities

The resident is expected to participate in all aspects of the management of trauma patients during their elective including the initial trauma assessment and resuscitation, the intraoperative management of traumatic injuries and the postoperative care. The resident will be expected to participate in trauma team call during their rotation.

### Evaluation

All faculty supervisors are encouraged to discuss performance on a regular basis with the resident involved. In addition, all supervisors will be asked for feedback on the resident towards the end of their rotation and an exit interview will be scheduled with the rotation supervisor. The Critical Care Senior In-Training Evaluation Report (ITER) will be reviewed, signed, and forwarded to the office of the Program Director, Program in Critical Care.

ELECTIVE: TRANSPORT EXPERIENCE

Contact & Supervisor: Dr. Ray Kao (ray.kao@lhsc.on.ca)

Introduction

This one block elective is intended for Critical Care Medicine Seniors (residents and fellows) to develop the Manager role. In addition, this elective will enhance the breadth of their experience in the ground and airborne transport of critically ill patients. Seniors would be expected to escort and supervise a minimum of one air transport by the end of their rotation. The supervisor is expected to review the goals and objectives at the beginning of the rotation.

Goals & Objectives

Medical Expert

<table>
<thead>
<tr>
<th>The Senior will acquire the basic knowledge, skills and attitudes to be able to safely and expediently facilitate the inter-hospital transfer of the critically ill patient. Knowledge objectives to be obtained include:</th>
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<tbody>
<tr>
<td>• Purpose of air/ground medical transport</td>
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<tr>
<td>• Medevac Planning</td>
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<tr>
<td>• Aircraft and Aircrew Operations</td>
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<tr>
<td>• Altitude physiology associated with air transport</td>
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<tr>
<td>• Medical Escort and Stresses of Flight</td>
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<tr>
<td>• Patient Care and Comfort</td>
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<tr>
<td>• Equipment /Patient Packaging/Aircraft Orientation</td>
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<tr>
<td>• Patient Care Problems and Specific Medical Situations</td>
</tr>
<tr>
<td>• Supporting Activities</td>
</tr>
<tr>
<td>• Surviving an In-flight Emergency</td>
</tr>
</tbody>
</table>

Communicator

- Communicate effectively with the patient and transport team
- Demonstrate effective shared decision making with transport team
- Maintain clear and accurate medical record during transport, and effectively present medical information to receiving health care team
- Demonstrate principles of crises resource management

Collaborator

- Work effectively with the multiprofessional transport team and aircrew

Manager

- Demonstrate the ability to prioritize the management of multiple problems in critically ill patient, to ensure safe transport
• Awareness and understanding of multiple healthcare organizations and systems in other cities/countries
• Participate effectively to optimize the contribution to maintaining effectiveness in healthcare organizations and systems across multiple cities and countries
• Be able to allocate finite healthcare resources that are within the plane appropriately
• Leadership roles while on the flight crew team and in times of emergencies

An orientation session to introduce all Seniors to transport equipment will occur yearly through academic half day. The Senior is expected to submit a schedule indicating availability for transport call with the Transport supervisor. Opportunity for transport experience will be provided through Foxflight Inc. in Toronto.

Evaluation

The Senior must submit a completed medical report of each transport attended (using the company's transport forms) to both the rotation supervisor and to the Program Director.

RK; DJL June 2005; June 2008; June 2010 MS; May 2012 MS
ELECTIVE: INFECTIOUS DISEASES

Contact & Supervisor: Dr. Ted Ralph

Sites: LHSC – University Hospital, Victoria Hospital

Introduction

For “off-service” trainees from training programs other than Cardiology (including Internal Medicine, Critical Care, Anesthesiology, Family Medicine +/- Emergency Medicine, Emergency Medicine etc.)

Goals & Objectives

The following are the rotation specific goals and objectives for trainees during their Infectious Disease experience.

Medical Expert

At the end of the rotation, the trainee will have:

1. developed evidence-based approaches to the investigation and management of patients presenting with:
   - fever or hypothermia
   - leucocytosis
   - septic shock
   - stiff neck and headache
   - heart murmurs
   - lymphadenitis/lymphadenopathy
   - soft tissue inflammation
   - inflamed joints
   - cough and sputum production
   - embolic lesions
   - painful throat, ears, and sinuses

2. developed evidence-based management strategies for:
   - fever of unknown origin
   - septicaemia
   - meningitis, encephalitis, brain abscess
   - pneumonia, bronchitis
   - mediastinitis
   - endocarditis, pericarditis
   - intraabdominal sepsis, hepatitis
   - osteomyelitis, septic arthritis
   - HIV infection, AIDS
   - viral syndromes
   - infections in neutropenic and transplant patients
   - pharyngitis, otitis, sinusitis
   - soft tissue infections
3. demonstrated proficiency in the following procedures:
   - use and interpretation of microbiology investigations including stains, cultures, serology
   - TB skin test
   - monitoring HIV infection with laboratory tests

**Communicator**

By the end of the rotation, the trainee will have demonstrated:
- the ability to obtain a thorough yet relevant history from patients with a proved or suspected infectious disease.
- effective presentation of clinically relevant information at the bedside.
- appropriate communication with patients and their families about the patient’s disease and its proposed management.
- the ability to communicate clearly with colleagues verbally, through consultation notes, and discharge summaries.
- skill in presentation and discussion of Infectious Disease topics at teaching, Infectious Disease specialty rounds, and Medical Grand Rounds.

**Collaborator**

During the rotation, the trainee will:
- participate effectively in the management of Infectious Disease patients.
- recognize the roles of the following team members
  - clinic nursing staff
  - clinical microbiology laboratory staff
  - pharmacy
  - secretarial and support staff

**Manager**

During the rotation, the trainee will:
- participate in and be given appropriate leadership responsibilities for the management of Infectious Disease patients.
- demonstrate appropriate use of available resources including diagnostic tests, inpatient and consultative services, and be aware of the economic implications of his/her decisions.
- develop his/her understanding of treatment costs including antibiotics and infection control procedures.

**Health Advocate**

On completion of the rotation, the trainee will:
- understand the impact of economic and social factors which predispose to or exacerbate infectious disease.
- understand the importance of preventive strategies in Infectious Disease including the prophylaxis of certain communicable diseases.
- have demonstrated appropriate attention to prevention counseling in patient encounters.
By the end of the rotation, the trainee will:

- understand the physiology of -
  - microbial virulence factors in bacterial, viral (including HIV infection), mycobacterial and fungal infection.
  - mechanisms of host defense mechanisms and the effects of immunosuppression.
- understand the pathophysiology of selected Infectious Diseases.
- understand the pharmacology of selected anti-infective agents.
- understand the scientific evidence supporting investigation and management strategies in Infectious Diseases.
- have demonstrated critical review of the literature surrounding management of patients with Infectious Disease.

During the rotation, the trainee will:

- recognize his/her professional obligations to patients and colleagues.
- be aware of the responsibility of the profession to society.
- demonstrate understanding of the ethics of consent to treatment.

- By the end of the rotation, the trainee will understand the ethical issues surrounding the treatment of Infectious Diseases including:
  - HIV infection
  - Understand diseases reportable to the Medical Officer of Health

The trainee will meet the objectives described through effective participation in the following activities:

1. Attendance at Infectious Diseases ambulatory clinics as assigned by the rotation mentor/supervisor.
2. Performance, review and follow-up of inpatient consultations.
3. Assessment and follow up of patients in the Intensive Care Units.
4. Interpretation and review of diagnostic laboratory tests.
5. Participation in the regularly scheduled educational and clinical activities of the Division, including on-call responsibilities as assigned/approved by the Chief Resident or Division Chief.

All faculty supervisors are encouraged to discuss performance on a regular basis with the Senior involved. In addition, all supervisors will be asked for feedback on the Senior towards the end of their rotation and an exit interview will be scheduled with the rotation supervisor. The Critical Care Senior In-Training Evaluation Report (ITER) will be reviewed, signed, and forwarded to the office of the Program Director, Program in Critical Care.

Department of Medicine, DJL
04/07/27
ELECTIVE: Nephrology

Contact & Supervisor: Dr. Claude Kortas
Sites: LHSC – University Hospital, Victoria Hospital

Introduction

For “off-service” trainees from training programs other than Cardiology (including Internal Medicine, Critical Care, Anesthesiology, Family Medicine +/- Emergency Medicine, Emergency Medicine etc.)

Goals & Objectives

The following are the rotation specific goals and objectives for trainees during their Nephrology experience.

Medical Expert

At the end of the rotation, the trainee will have:

1. developed evidence-based approaches to the diagnosis and management of patients presenting with -
   - acid-base abnormalities
   - electrolyte abnormalities
   - a variety of immunological disorders with renal involvement
   - fluid management of acutely ill patients
   - acute and chronic renal failure
   - glomerulonephritis
   - tubular interstitial diseases of the kidney
   - urinary tract obstruction
   - hypertension
   - urinary tract infection

2. demonstrated proficiency in the following procedures -
   - femoral line insertion
   - internal jugular line insertion
   - volume assessment of patients with kidney disease

3. demonstrate practical knowledge regarding the use of renal replacement therapies

Communicator

By the end of the rotation, the trainee will have demonstrated:

- the ability to obtain a thorough yet relevant history from patients with nephrological disease.
- skill in presentation and discussion of nephrological topics at teaching and patient care rounds.
- achievement of the overall Program Objectives at a level appropriate to the level of training.
**Collaborator**

During the rotation, the trainee will:
- participate effectively in the multidisciplinary team management of nephrological patients.
- recognize the roles of the following team members
  - Social Worker
  - Nurse Practitioner, and Dialysis Nurse
  - Pharmacist
  - Physiotherapist
  - Occupational Therapist
  - Community Support Services

**Manager**

During the rotation the trainee will participate in and be given appropriate leadership responsibilities for the management of patients with nephrological disease.

**Health Advocate**

On completion of the rotation, the trainee will:
- understand the impact of economic and social factors which predispose and/or exacerbate nephrological disease
- understand the importance of preventive strategies in nephrological disease
- have demonstrated appropriate attention to prevention counseling in patient encounters

**Scholar**

By the end of the rotation, the trainee will:
1. understand basic physiology of -
   - the kidney
   - the immunopathogenic mechanisms of renal injury
2. understand the pathophysiology of -
   - electrolyte abnormalities
   - acid base disturbances
   - abnormal water handling by the kidney
   - hypertension
   - renal failure
3. understand the pharmacology of -
   - drug dosing in patients with kidney dysfunction
   - erythropoietin and its role in patients with renal failure
   - immunosuppressive therapy in patients with kidney disease
4. understand the scientific evidence supporting investigation and management strategies in kidney diseases
5. demonstrate critical review of the literature surrounding management of patients with kidney disease.
Professional

By the end of the rotation, the trainee will understand the ethical issues surrounding:

- care decisions made near or in anticipation of the end of life.
- consent to dialysis.
- consent to procedures related to the management and the diagnosis of kidney diseases.

Responsibilities

The trainee will meet the objectives described through effective participation in the following activities:

1. Attendance at Nephrology ambulatory clinics as assigned by the rotation mentor/supervisor.
2. Performance, review and follow-up of inpatient consultations.
3. Assessment and follow up of patients in the Intensive Care Unit.
4. Interpretation and review of diagnostic laboratory tests.
5. Participation in the regularly scheduled educational and clinical activities of the Division, including on-call responsibilities as assigned/approved by the Chief Resident or Division Chief.

Evaluation

All faculty supervisors are encouraged to discuss performance on a regular basis with the Senior involved. In addition, all supervisors will be asked for feedback on the Senior towards the end of their rotation and an exit interview will be scheduled with the rotation supervisor. The Critical Care Senior In-Training Evaluation Report (ITER) will be reviewed, signed, and forwarded to the office of the Program Director, Program in Critical Care.

Department of Medicine, DJL
04/07/27
ELECTIVE: RESPIROLOGY

Contact: Dr. Mithu Sen
Supervisor: Dr. David McCormack (Victoria Hospital)
Sites: LHSC – Victoria Hospital: In-Patient/Consultative Service

Introduction

This elective rotation is intended for Critical Care Medicine Seniors (residents and fellows) who wish to enhance the breadth of their experience in the care of patients with diseases of the respiratory system, outside of the critical care environment. The Senior will be at Victoria Hospital as a member of the Respiratory Division’s In-Patient/Consultative Service. Site-specific orientation documents will be made available prior to the start of the elective by Dr. McCormack. As a member of the service, the Senior is expected to participate fully in all of the educational activities of the Division.

Overall Goals & Objectives

The resident will acquire the basic knowledge, skills and attitudes to be able to recognize, investigate, and manage common adult respiratory diseases, seen in both the ward and ambulatory setting. The knowledge base will include an appreciation of the basic sciences relevant to respiratory diseases. The professional characteristics to be demonstrated and developed include responsibility, intellectual curiosity, self-appraisal, compassion, and the ability to communicate with peers and patients, and a commitment to continuing medical education. The skills to be demonstrated include:

- Demonstrate proficiency in interpretation of chest radiographs.
- Recognize common abnormalities on chest computerized axial tomography (CT) scan.
- Demonstrate proficiency in interpretation of pleural fluid analysis.
- Demonstrate proficiency in the interpretation of common pulmonary function tests.
- Acquire experience and understand basic indications, contraindications, complications, technical aspects and quality assurance issues of the following:
  - Bronchoscopy in the non-intubated patient
  - Thoracentesis and pleurodesis
  - Placement of closed intrapleural chest tube
  - Oxygen delivery systems
  - Inhalational devices

Medical Expert

- To become an expert in the role of Junior Consultant in Respirology.
- To consolidate skills in the role of Most Responsible Physician in a Respiratory patient.
- To perform an appropriate history and physical examination on a patient presenting with respiratory symptoms or an abnormal laboratory test.
- To generate a provisional diagnosis and differential diagnosis to guide the investigative process.
- To order appropriate investigations in order to establish the diagnosis and to assess the severity of...
To obtain a detailed understanding of concepts of lung physiology as they relate to the measurement of lung function and to be able to apply these concepts in the interpretation of pulmonary function tests. These concepts include:

- hyperinflation and gas trapping
- lung and chest wall restriction
- airflow limitation
- abnormalities of diffusion
- airway hyper responsiveness

To be able to discuss the natural history of any respiratory disease with and without treatment.

To develop expertise in the pharmacologic and non-pharmacologic aspects of treatment.

To recognize the interaction of co-morbid conditions on the management and prognosis of respiratory diseases.

To develop competence in the management of chronic respiratory diseases such as:

- COPD
- Cor pulmonale and pulmonary heart disease
- Asthma
- Bronchiectasis and cystic fibrosis
- Pulmonary fibrosis and interstitial lung disease
- Sarcoïdosis
- Pneumoconiosis
- Neuromuscular disease
- Pleural disease
- Lung malignancy
- Sleep related respiratory disorders

To develop competence in the management of acute respiratory exacerbations and diseases such as:

- Pulmonary infections
- Acute exacerbation of COPD
- Acute asthma/bronchospasm
- Aspiration
- Acute lung injury including ARDS, smoke inhalation
- Lung malignancy
- Upper airway obstruction
- Pneumothorax
- Pleural effusion
- Pulmonary embolus
- Pulmonary edema
- Pulmonary hemorrhage

To have knowledge and skill in assessment and management of the pulmonary complications associated with:

- Immunosuppression, including HIV infection
- Exposure to medications and chemicals known to have potential lung toxicities or side effects

To have knowledge and skill in assessment and management of pulmonary manifestations of systemic diseases.

To develop expertise in the assessment and management of acute respiratory failure with:

- timely and safe application of oxygen therapy with awareness of principles of controlled oxygen
- Knowledge of indications for and management of techniques such as CPAP, BIPAP and mechanical ventilation
- Awareness of physiological effects of the above therapies on normal and abnormal pulmonary function
- Identification and treatment of precipitating causes
- Selection of appropriate environment for monitoring

- To have expertise in the use of home oxygen by having knowledge of:
  - Criteria for home oxygen
  - Evidence for benefits and risks of home oxygen therapy
  - Available modalities for the administration of home oxygen

- To recognize dangerous situations relating to the control and mechanics of breathing such as impaired respiratory drive, respiratory muscle fatigue and disorders of respiratory control.

**Communicator**

- To be able to communicate the clinical impression in a clear and concise fashion in both the written and oral forms to the referring physician and to other medical personnel.
- To be able to communicate the clinical impression to the patient family in a clear and compassionate way that takes into account the patient’s cultural values and education.
- To be able to extract the relevant clinical question(s) posed when approaching a Respirology consultation.

**Collaborator**

- To be able to liaise with primary care physicians and related health care professionals in order to ensure efficient and safe discharge to the community.

**Manager**

- To demonstrate the ability to triage the management of multiple acute patients who present at any given time, and to prioritize the management of multiple problems occurring with one individual patient at any given time.
- To demonstrate knowledge of the cost of investigations performed and the limitations of finite health care resources.
- To formulate a plan of investigation with consideration of the costs of testing, the positive predictive value and negative predictive value.
- To balance the demands of caring for hospitalized patients with other lifetime priorities such as Continuing Medical Education, personal health and home life.

**Health Advocate**

- To recognize the importance of smoking cessation as it applies to the individual, community and nation.
- To be able to assist patients in understanding the importance of preventative health strategies, such as smoking cessation and vaccination.
- To provide the opportunity for patients to seek other treatment options, such as pulmonary rehabilitation or treatment of depression, for which the patient may need encouragement to do so.
- To recognize when end-stage respiratory failure or late-stage lung malignancy is present, and to be able to arrange for appropriate palliative care when further active interventions have no reasonable possibility of benefit.
- To recognize hazards posed by infections such as a TB, HIV, influenza and febrile respiratory illness, and to
utilize personal protective equipment and environmental control measures to protect oneself, the health care team and other patients.

### Scholar
- To incorporate evidence based medicine and ethical and legal principles in planning investigations and formulating treatment plans.
- To commit to lifelong Continuing Medical Education in Respirology and other related fields.
- To provide teaching about respiratory diseases to clinical clerks, residents, attending physicians and other related health care professionals.

### Professional
- To consistently demonstrate appropriate professional and personal behavior.

### Responsibilities
The Senior is expected to perform in-house consultations and attend relevant clinics. The Senior will conduct complete assessments on new patients and selected follow-ups, and review their assessment with the faculty supervisor. Opportunity will be provided to perform bronchoscopy, thoracentesis, pleural tube insertion, and interpret pulmonary function studies.

### Evaluation
All faculty supervisors are encouraged to discuss performance on a regular basis with the Senior involved. In addition, all supervisors will be asked for feedback on the Senior towards the end of his/ her rotation and an exit interview will be scheduled with the rotation supervisor. The Critical Care Senior In-Training Evaluation Report (ITER) will be reviewed, signed off by the rotation supervisor, and forwarded to the office of the Program Director, Critical Care Western.

DJL 04/07/27; 06/07/01
Updated: MS June 2010
ELECTIVE: COMMUNITY CRITICAL CARE

Supervisor: Community Critical Care Physician
Sites: Community Hospitals

Introduction

The knowledge and skills offered by the Critical Care specialist are not restricted to academic and teaching hospitals. It is expected that community hospitals will increasingly require individuals with Critical Care training. Trainees may wish an opportunity to experience practice in these settings, possibly in a region that they may wish to eventually 'put down roots'. Simply, it represents preparedness for community practice with a 'reality check' prior to the completion of postgraduate training through the experience of a supervised community practice.

Goals & Objectives

- The trainee must have the opportunity to fulfill the following CanMEDS roles:

Medical Expert

- To consolidate knowledge and skills acquired during postgraduate training in critical care through junior consultant responsibility in a community ICU setting (i.e., practice autonomy with appropriate supervision).
- To gain further experience in procedural skills applicable to a community ICU practice (e.g., airway management, temporary cardiac pacemakers, central venous catheters, arterial cannulations, lumbar puncture, etc.).

Communicator

- Provide accurate information appropriate to the clinical situation.
- Communicate effectively with medical colleagues, nurses, and paramedical personnel in all environments.
- Demonstrate appropriate oral and written communication skills.

Collaborator

- Demonstrate ability to function in the clinical environment using the full abilities of all team members.
- Effectively collaborating with a multiprofessional team on a daily basis.
- Demonstrate timely and appropriate consultation skills directed towards various medical specialties contributing to the patients care.

Manager

- To describe the administrative organization required to cooperatively manage an intensive care facility within a community hospital.

Health Advocate

- To gain experience caring for critically ill patients in a community setting, given the different setting of care (i.e., absence of junior housestaff, less after-hours access to diagnostic imaging) that may require modification of previously learned diagnostic and therapeutic strategies (i.e., decision making in the
absence of technological resources which may have been immediately available in the tertiary care environment). The trainee will need to review and adapt with standards that are perceived as being different from those of the home environment.

- To gain further experience in the diagnosis and management of common diseases that present to the community ICU with recognition of their potential complications.

Scholar

- To compare and contrast the knowledge and skills acquired in the tertiary care postgraduate critical care training program with the needs of the community ICU physician.

Professional

- To participate (as an observer) in the ICU administrative decision-making process especially with respect to issues pertaining to quality assurance.
- To assist in identifying training deficiencies necessary to enhance preparedness for community practice.

Responsibilities

The trainee will be expected to identify the community in which the elective is to occur. The Program Director will make contact with the Medical Director of the hospital’s intensive care unit to ensure that the training objectives can be satisfactorily met. Opportunity for practice autonomy with appropriate supervision must be provided.

Evaluation

The supervisor(s) will be encouraged to discuss performance on a regular basis with the trainee involved. In addition, feedback on the trainee towards the end of their rotation along with an exit interview must be scheduled. The Critical Care Senior In-Training Evaluation Report (ITER) will be reviewed with the trainee, signed, and forwarded to the office of the Program Director, Program in Critical Care.

Created: June 2004  DJL
Research elective time

A resident requesting research elective time must have completed and submitted a research proposal signed by the research supervisor before the research elective request will be granted. The expected completion date should also specify whether the research will be completed using academic weeks in addition to the elective time.

A resident undertaking a research elective of one block duration or greater is expected to generate a research report submitted to the Senior Resident Research Director, Dr. Karen Bosma, within two weeks of completion of research block which will also be reviewed by the Program Director. This report will outline goals for the project including timeline for presentation and development of a manuscript for submission formatted for an appropriate journal (whether already submitted or not). This report has to be reviewed and judged satisfactory by at least two faculty members in the Program and the Program Director. If the abstract has been accepted for a publication at a national or international meeting, it may only be reviewed by the Senior Resident Research Director and Program Director. All Critical Care Western projects must have a Critical Care Western faculty as a primary supervisor. There can be more than one Critical Care Western faculty on each project serving as a supervisor.

Residents who are granted a research block are not on a clinical service, therefore up to three day/night coverage of a clinical service may be requested based on the need within the Critical Care Western program. While this will be an expectation from Critical Care Western for residents on research blocks, it is not intended to compromise the research elective block(s). Therefore, it will be subject to negotiation to find the optimal time by the resident and Site Medical Director requesting the clinical coverage.
ELECTIVE: THORACIC SURGERY

Contact & Supervisor: Dr. Dalilah Fortin

Site: LHSC – Victoria Hospital

Introduction

This elective rotation is intended for Critical Care Medicine Seniors (residents and fellows) who wish to enhance the breadth of their experience in surgical care of patients with congenital and acquired diseases of the chest wall, mediastinum, lungs, trachea, pleura, esophagus, stomach and diaphragm outside of the critical care environment. It is also an opportunity to enhance their experience in the care of oncology patients. The Senior will be at Victoria Hospital as a member of the Thoracic Surgery Service. As a member of the service, the Senior is expected to participate fully in all of the educational activities of the Division.

Overall Goals & Objectives

The resident will acquire the basic knowledge, skills and attitudes to be able to recognize, investigate, and manage common adult diseases involving the chest wall, mediastinum, lungs, trachea, pleura, esophagus, stomach and diaphragm. This experience will be acquired through involvement in the ambulatory setting (clinics and endoscopy), inpatient management, emergency consultation, and operating room setting. The knowledge base will include an appreciation of the basic sciences relevant to the respiratory and upper gastrointestinal systems, as well as the oncologic aspect and surgical management of diseases related to these systems.

Medical Expert

Chest wall, mediastinum, lungs, trachea, pleura, and diaphragm

- To perform an appropriate history and physical examination on a patient presenting with thoracic symptoms or an abnormal imaging
- To generate a provisional and differential diagnosis to guide the investigative process
- To order appropriate investigations in order to establish the diagnosis and assess the physiologic ability to tolerate a surgery
- To interpret the imaging related to the respiratory system including:
  - CXR
  - CT scan / CT pulmonary angiogram
- To understand the normal anatomy and physiology of the chest wall, mediastinum, lungs, trachea, pleura, and diaphragm and the effect of abnormal anatomy or diseases on the function of these organs
- Understand the physiology of the respiratory system
  - Interpretation of pulmonary function test, quantitative perfusion scan and VO2 max in the assessment of a patient for pulmonary resection
  - Understand the role of pleural pressures and the contribution of chest wall and diaphragm integrity in maintaining normal physiology
  - To develop understanding of the surgical management of diseases involving the chest wall, mediastinum, lungs, trachea, pleura, and diaphragm
- Chest wall pathology including rib fracture, flail chest and chest wall tumor
- Mediastinal pathology including mediastinal adenopathies, pneumomediastinum, pericardial effusion and mediastinal tumor
- Lung pathology including lung contusion, massive hemoptysis, bullous disease, lung infections and abscesses, role of surgery in interstitial lung disease and lung cancer
- Upper airway disease, including tracheostomy, airway obstruction and broncho-pleural fistula
- Pleural disease including pneumothorax, pleural effusion, empyema, and broncho-pleural fistula
- Diaphragmatic disease including traumatic injury and diaphragmatic hernia
- Develop an understanding of the anesthetic management (lung isolation, single lung ventilation) of patient requiring surgery on the respiratory system
- Become competent in the post-operative management of thoracic patients
  - Understand the management of air leak
  - Recognize common and uncommon pulmonary complications
  - Learn the management of such complications

**Esophagus and Stomach**
- To perform an appropriate history and physical examination on a patient presenting with upper digestive symptoms or an abnormal imaging test
- To generate a provisional diagnosis and differential diagnosis to guide the investigative process
- To order appropriate investigations in order to establish the diagnosis
- To interpret the physiologic testing and imaging related to the upper gastro-intestinal system including:
  - Barium swallow
  - CT scan
  - Esophageal manometry and PH study
- To understand the normal anatomy and physiology of the esophagus and stomach
  - Appreciate the effect of abnormal anatomy, disease, or surgery on the function of these organs
  - Appreciate the effects of disturbance on other organs (aspiration, chest pain, dyspnea, mediastinitis, etc.)
  - To develop understanding of the surgical management of diseases involving the esophagus or stomach
  - Esophageal pathology including dysmotility, gastro-esophageal reflux, hiatal hernia, achalasia, diverticulum, perforation, and esophageal cancer
  - Stomach pathology including volvulus, gastric cancer
  - Become competent in the post-operative management of patients with upper GI surgeries
  - Understand the presentation and management of ileus, obstruction, anastomotic leak, chylothorax and wound complications

**Oncology**
- To perform an appropriate history and physical examination on a patient presenting with an oncologic condition
- To generate a provisional diagnosis and differential diagnosis to guide the investigative process
- To order appropriate investigations in order to establish the diagnosis
- To interpret the imaging used in the investigation of the oncologic patient:
  - CT scan (chest abdomen and pelvis)
  - CT or MRI head
  - Bone scan / PET scan
Biopsy and technique

- To understand the presentation and natural history of common malignancy such as lung, esophageal and gastric cancer
- Understand the staging of cancer, their management and follow-up in view of the stage of disease
- Understand the role of chemotherapy and radiation in the management of thoracic malignancy as well as their potential complications
- To develop understanding of the oncologic emergencies and their management strategies
  - Airway obstruction including endobronchial tumors or anterior mediastinal mass
  - Respiratory failure via massive malignant effusion
  - Esophageal obstruction
  - Neurologic involvement via brain or spinal cord metastasis
  - Pathologic fractures
  - Paraneoplastic syndrome

Technical skills

- Acquire experience and understand basic indications, contraindications, complications, technical aspects and quality assurance issues of the following:
  - Bronchoscopy in the non-intubated patient
  - Bronchoscopy in the intubated patient
  - Placement of bronchial blocker and technique for lung isolation
  - Thoracentesis
  - Placement of chest tube or small drainage catheter for simple and complex effusion
  - Management of chest tubes (troubleshooting, air leak, Heimlich valve, etc.)
  - Administration of intrapleural fibrinolytic or pleurodesis agent
  - Percutaneous tracheostomy
  - Open tracheostomy
  - Management of tracheostomy tube (size, change and decannulation)
  - Principle of emergency thoracotomy

Communicator

- To be able to communicate the clinical impression in a clear and concise fashion in both the written and oral forms
- To be able to communicate the clinical impression to the patient family in a clear and compassionate way that takes into account the patient’s cultural values and education.
- To be able to extract the relevant clinical question(s) posed when approaching a Thoracic consultation.

Collaborator

- To be able to liaise with primary care physicians and related health care professionals in order to ensure efficient and safe discharge to the community.

Manager

- To demonstrate the ability to triage the management of multiple acute patients who present at any given time, and to prioritize the management of multiple problems occurring with one individual patient at any given time.
- To demonstrate knowledge of the cost of investigations performed and the limitations of finite health care resources.
• To balance the demands of caring for hospitalized patients with other lifetime priorities such as Continuing Medical Education, personal health and home life.

Health Advocate
• To recognize the importance of smoking cessation as it applies to the individual, community and nation.
• To be able to assist patients in understanding the importance of preventative health strategies, such as smoking cessation
• To recognize when end-stage respiratory failure or late-stage lung malignancy is present, and to be able to arrange for appropriate palliative care when further active interventions have no reasonable possibility of benefit.

Scholar
• To incorporate evidence based medicine and ethical and legal principles in planning investigations and formulating treatment plans
• To provide teaching to clinical clerks, residents, attending physicians and other related health care professionals.

Professional
• To consistently demonstrate appropriate professional and personal behavior

Responsibilities
The Senior is expected to participate in morning rounds of Thoracic inpatients. Following rounds, participation to clinics, inpatient consultations, endoscopy or operating room is expected. Calls are an opportunity for learning and also an opportunity for the consultants to assess the resident. Call expectation for one block rotation will be 4 evenings and one 3 days weekend. The senior resident will then be responsible of the Thoracic surgery service and interact directly with the consultant. A surgical resident will be available for OR procedures. The senior resident is expected to participate to the educational activity of the Thoracic division but will be released for the Critical Care half-day teaching. The learning on this rotation is highly dependent on the senior resident involvement in the activities of the service. Presence, interest, engagement and pro-activeness in looking / participating in learning opportunities will foster a good rotation.

Evaluation
Informal feedback will be given at mid-rotation. The end-of-rotation evaluation will be done by Dr. Fortin with feedback from the other consultants, the Thoracic surgery senior resident, the nurse practitioner and allied health. The Critical Care Senior In-Training Evaluation Report (ITER) will be reviewed with the resident at the time of the exit interview, and forwarded to the office of the Program Director, Critical Care Western.
Portfolios are instruments that promote reflection. Learners are frequently asked to provide a record of their accomplishments, whether to show progress in mastering a field, documenting educational outcomes, or managing their own learning. Portfolios have emerged as a potential tool for collecting, storing, updating, and sharing information for traditional learners, faculty, and lifelong learners.

*A wise man learns by the experiences of others.*

*An ordinary man learns by his own experience.*

*A fool learns by nobody’s experience.*  Anonymous

*’We learn by doing and realizing what we did’.  John Dewey*

How do we define it?

We define our portfolio as a collection of evidence, which demonstrates and confirms the continuous acquisition of knowledge, attitudes, skills, understanding and achievements over a trainee’s residency/fellowship. The components include:

1. Program-determined benchmark expectations or the so-called ‘performance portfolio’.
2. Items created and selected by the trainee or the so-called ‘working portfolio’. Items that contain evidence of how goals were met and competence progressed. For example:
   - Journal club reports
   - Presentations, lectures, or teaching sessions performed
   - Reviews of literature completed to answer specific questions
   - Audits or reports of critical incidents with patients or colleagues
   - Workshops attended, e.g., ATLS, teaching, etc.
   - Quality improvement exercises or project work, etc.
   - Individual reading and learning plans
   - Personal learning projects generated from questions at the bedside
   - Basic or clinical research projects (preparation, grant proposal, etc.)
   - Publications of academic work
   - Colleague feedback
     - Witnessed communication feedback forms (MSICU/CCTC)
     - Weekly performance feedback forms (MSICU)
     - Proficiency in core technical skills using simulators

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3 The National Learning Infrastructure Initiative, 2004

4 Refer to the UWO Critical Care Western Document ‘Performance’ Portfolio.
Portfolio Maintenance

Portfolio maintenance will be a joint responsibility each Senior, an identified coach, and the Office of the Program Director.

1. ‘Performance portfolio’

   An updated binder of the information about the trainee will be kept in the Office of the Program Director. The elements and sections of the binder will include:
   - Personal Data
   - Rotation Schedules indicating experience
   - Rotation ITER’s
   - Exam Reports
   - An updated Curriculum Vitae
   - Correspondence between Senior and Program Director
   - Background Documentation at program entry

2. ‘Working portfolio’

   The Senior will maintain a personal binder of information that provides a sense of progress and process. To help foster and develop reflective skills, the working portfolio will be shared with a coach. The coach will help to identify, clarify, and facilitate the Senior’s reflective process. All portfolio material, of which there is an infinite number, will serve as a focus for discussion points regarding professional responsibility. The elements and sections of the binder are determined by the Senior but may be suggested by the coach. It is expected that the Senior will arrange to meet the coach two times yearly (at a minimum) to review his/her ‘working portfolio’. The Senior will be responsible for arranging the date and time of the meetings with the coach. All the information from the Portfolio should be copied to the Senior’s dossier in the office of the PGE Program Director, CCTC.

References


Created: July 1, 2004
Updated: October 2004; July 2006; June 2007; June 2008; June 2009 DJL; updated MS June 2010

5 Reflection: ‘Letting future behavior be guided by a systematic and critical analysis of past actions and their consequences’ (BMJ 2008;336:827-30)

6 A coach is an active partner in an ongoing relationship who helps you maximize your potential and achieve your personal and professional goals.
SENIOR ‘PERFORMANCE’ PORTFOLIO

Preamble

Evaluation is essential in the assessment of resident/fellow competency. The evaluation strategies used must be accountable (defensible), valid (designed to test appropriate competencies), reliable (reproducible), and feasible (easy to implement). The Residency Training Committee has developed the following blueprint to ensure that the RCPSC objectives of training in critical care have been met prior to the completion of training.

Components of the ‘Performance’ Portfolio

- ICU In-Training Evaluation Report (ITER) every 3 blocks (at a minimum) during MSICU/CCTC rotations. An ITER must also be completed for rotations in CSRU, Neurocritical Care, and any elective outside of the ICU.
- Research ITER and Publication Report; if elective research block.
- Short Answer Question (SAQ) Examinations.
- Presentation at Western/McMaster Resident’s Research Day.
- Junior Evaluations (refer to the Clinical Preceptor Form).
- Attendance at: ATLS course (1); Teaching course (1); an acceptable Critical Care Conference (yearly); updated ACLS course.
- Mandatory Attendance at: Weekly Senior Sessions and Grand Rounds.
- Maintenance of an updated curriculum vitae.
- Participation in simulation learning and teaching.
- Ensuring weekly feedback sheets are part of the portfolio and dossier.

Expected Performance for RCPSC Residents and Fellows

The following expectations are required for satisfactory completion of training, prior to submission of the Final In-Training Evaluation Report (FITER) to the Royal College of Physicians and Surgeons of Canada by the Residency Training Committee. These expectations are based on a two-year program.

NOTE: appropriate modifications will be made for Fellows attending for a one-year period.

The ‘Performance’ Portfolio describes the minimum expectations of each Senior before completion of the Final In-Training Evaluation Report (FITER) by the Residency Training Program. The FITER is dependent on a rigorous and valid in-training evaluation system. It relies on multiple observations and multiple methods of evaluation appropriate to the objectives being evaluated. If the minimum expectations for any Senior are not attained, or are not likely to be attained during the academic year, the Residency Training Committee will meet at the Program Director’s request, to review the Senior’s dossier. The Residency Training Committee will determine whether or not the deficiencies are correctable. Any UNSATISFACTORY ITER, or a pronouncement by the Residency Training Committee that the minimum expectations of performance are UNLIKELY to be attainable within the duration of the Senior’s training, will be brought to the attention of the Associate Dean, Postgraduate Medical Education Office for further action.
Minimum Expected Performance for RCPSC Residents and Fellows

<table>
<thead>
<tr>
<th></th>
<th>MSICU/CCTC ITER</th>
<th>CSRU ITER NeuroCC ITER</th>
<th>Elective ITER</th>
<th>Research ITER &amp; Report*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum number</td>
<td>4</td>
<td>2</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>required</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Performance</td>
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<tr>
<td>required</td>
<td>An ITER must be completed for each 3 blocks in the ICU</td>
<td>An ITER must be completed for each</td>
<td>An ITER must be completed for each elective taken</td>
<td>Satisfactory ITER and a publication report, reviewed by two faculty</td>
</tr>
</tbody>
</table>

*If dedicated research blocks provided.

<table>
<thead>
<tr>
<th></th>
<th>SAQ</th>
<th>Research Day Presentations</th>
<th>Junior Evaluations</th>
<th>Senior Sessions*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum number</td>
<td>4 exams available</td>
<td>1</td>
<td>20</td>
<td>Attendance &gt;75%</td>
</tr>
<tr>
<td>required</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Performance</td>
<td>Participation</td>
<td>Satisfactory Completion number</td>
<td>Overall mean score ≥3.50 out of 5.00</td>
<td>Punctual Attendance and Participation</td>
</tr>
<tr>
<td>required</td>
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</table>

*Senior must keep track of sessions attended within portfolio.

These are exit expectations to be fulfilled over the duration of critical care training, whether this occurs over 2 years or 3 years. It is based on a 24 month critical care curriculum.
<table>
<thead>
<tr>
<th>Performance required</th>
<th>‘Working’ Portfolio*</th>
<th>Curriculum Vitae</th>
<th>Simulation Training</th>
<th>Courses &amp; Conferences</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>‘Adequate’ evidence of practice reflection must be captured within the portfolio, as assessed by the Senior’s mentor.</td>
<td>An updated CV is to be maintained at all times.</td>
<td>Initial training and participation in scheduled simulation sessions Require participation for initial training and teaching of Junior residents</td>
<td>Documentation of attendance: MCCKAP (1) ATLS (1) ACLS (1) Teaching Skills (1) CC Conference (2)</td>
</tr>
</tbody>
</table>

* Refer to the ‘Working Portfolio’ document for details.

Created: July 2001 DJL
SENIOR ‘WORKING’ PORTFOLIO

Preamble

The Senior will maintain a personal binder of information that provides a sense of progress and process. To help foster and develop reflective skills\(^8\), the working portfolio will be shared with a coach\(^9\). The coach will help to identify, clarify, and facilitate the Senior’s reflective process. All portfolio material, of which there is an infinite number, will serve as a focus for discussion points regarding professional responsibility. The elements and sections of the binder are determined by the Senior but may be suggested by the coach. It is expected that the Senior will arrange to meet the coach two times yearly (at a minimum) to review his/her ‘working portfolio’. The Senior will be responsible for arranging the date and time of the meetings with the coach. The Senior will decide what elements of his/her ‘binder of evidence’ will be reviewed with the mentor at the time of meeting.

Your Guide to a ‘Working’ Portfolio

Not too far in the future you will have completed your Critical Care training. You will be searching for further stimulating challenges, not just income. You may be desire employment as an academic intensivist working in a university setting; a dual-trained specialist working in a community hospital; or searching for further specialized training or research. Regardless, you will need to provide evidence to those interviewing you for the position that you have the best qualifications!

So let’s start with a simple question. What does it mean to be an intensivist? A few different articles are attached below to stimulate a little interest. Will you have what it takes to be the best at your job? Will you be able to convince yourself and others that you have the ‘right stuff’?

During your training take some time to look back on your actions in response to your numerous and varied experiences. Analyze why things happened the way they did. Ask yourself if there are alternative (better) ways to act and if so try one of them out. Use the SMART action lead to respond (i.e., let the action be Specific, Measurable, Acceptable, Realistic, and Time bound) and then look again. Capture the reflection in your portfolio.

You choose the means and content but make sure its documented.

\(^8\) Reflection: ‘Letting future behavior be guided by a systematic and critical analysis of past actions and their consequences’ (BMJ 2008;336:827-30)

\(^9\) A coach is an active partner in an ongoing relationship who helps you maximize your potential and achieve your personal and professional goals.
Steps in reflecting upon one’s experience (ALACT)

Reflection is a cyclic process of self-regulation in which one:

Acts (A)

Looks back in their actions (L)

Analyzes their actions (A)

Formates alternatives; creates (C)

Use the ‘SMART’ approach to creating new actions

Specific, Measurable, Acceptable. Realistic, and Time Bound

Try out the alternatives in practice; trials (T)

Articles you may wish to read:


Duties of an Intensivist and the Practice of Critical Care Medicine (Canadian Critical Care Society) 2002. (attached)

CoBaTrICE is an international Competency Based Training programme in Intensive Care Medicine for Europe and other world regions. This website links the CoBaTrICE competencies to the syllabus, assessment guidelines and educational resources. http://www.cobatrice.org/
Footnotes for the table below

Personal practice reviews are activities that allow individuals to assess a particular aspect of their own performance in any dimension of their professional practice: clinical, education, administrative or research practice. In addition, practice reviews can focus on any competency such as communication skills.

**PLP (Personal Learning Projects):** *(See Royal College MOC)* These are structured, self-planned learning activities stimulated by practice. Each project defines the question or issue that describes the learning focus or need, the learning strategy that was implemented and the conclusions identified for practice. Two variations of structured learning projects have been recently introduced:

**Point of Care Learning** – these are personal learning projects that are initiated and completed at the point of care during the management of a patient problem.

**Critically Appraised Topic** – these are personal learning projects stimulated by practice where the learning plan is focused on a detailed critique of one or more research papers.

<table>
<thead>
<tr>
<th>CanMEDS Role</th>
<th>A Few Examples to Consider for Your ‘Working Portfolio’</th>
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<tbody>
<tr>
<td>Medical Expert</td>
<td>Track the teaching sessions you attend and the readings you do. Recognize what you know and what needs to be yet learned to be an effective intensivist.</td>
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<tr>
<td></td>
<td>Identify a clinical question at the bedside where more knowledge is required. Construct and complete a Personal Learning Project (PLP)*.</td>
</tr>
<tr>
<td>Communicator</td>
<td>Take opportunity to do a Personal Practice Review (PPR). Ask the social worker to observe and provide feedback on your communication style with families. Have a Witnessed Communication Form completed. Explore how you perform in different settings, e.g., brain death, EoL discussion, disclosure of an adverse event; obtaining consent etc. What have you learned? Should you make any changes?</td>
</tr>
<tr>
<td></td>
<td>Record your impressions about a personal educational development workshop (e.g., 'Teaching Skills Course'). Indicate how you may want to modify future bedside teaching strategies.</td>
</tr>
<tr>
<td>Collaborator</td>
<td>Attend a conflict resolution or constructive negotiation workshop. Record new ideas or practice tips for your practice.</td>
</tr>
<tr>
<td></td>
<td>Review feedback provided to you from the interdisciplinary team following a week of 2nd call in MSICU caring for the patient requiring prolonged mechanical ventilation. Should you make any changes?</td>
</tr>
<tr>
<td>CanMEDS Role</td>
<td>A Few Examples to Consider for Your ‘Working Portfolio’</td>
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| Manager      | Learn how to manage change in the intensive care unit. Identify a situation where change needed to occur and your participation to help make it happen.  
Serve on committees that plan elements of health care delivery.  
Learn how to lead through the effective use of meetings and committees. Identify and refine those qualities that are respected. Lead inter-professional rounds and patient care meetings (EICU) and request feedback for personal practice improvement. |
| Health Advocate | Collect and critically review items (e.g., newspaper articles or other reports, self-written notes and CMPA circulars) as they pertain to critical care. Identify those reports where change in practice should occur.  
Recognize an adverse event when it occurs and respond effectively to ensure disclosure, mitigate harm, and prevent it from happening again.  
Document a case in which they were involved that highlighted a difficult moral or ethical challenge. Discuss the case with your mentor indicating what you have learned. |
| Scholar      | Pose, develop strategies and aim to answer scholarly questions. Document your process and outcome.  
Develop educational modules for teaching important concepts; create and peer-review exam questions.  
Critically appraise journal articles for presentations; document and effectively communicate your conclusions and relevance/effect on present practice. Lead junior colleagues through the process. |
| Professional | Document a case in which you were involved that highlighted a difficult moral or ethical challenge; discuss/present the case. Indicate how the case may influence your future practices.  
Participate in a peer review process through the review of others. Describe what you have learned. |
ACTION-PLANNING WORKSHEET

Use this worksheet to establish an action plan that is agreeable to both you and the Senior you are coaching. It is critical to include specific measures of success and a target review date for any actions to be completed.

Senior:  
__________________________________________

Coach:  
__________________________________________

Date of Session:
__________________________________________

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<tr>
<th>Action to Be Taken</th>
<th>Measure(s) of Success</th>
<th>Review Date</th>
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CRITICAL CARE WESTERN COACH PROGRAM

Each Senior in the Western University Critical Care Program is paired with an ICU staff member as a coach. This position is important to help Critical Care Seniors navigate their way through the program, helping with their clinical, academic and personal development. The coach is not only someone who can help facilitate research projects, but is a role-model for becoming an academic critical care physician. The coach is also an important resource for ensuring Seniors mental and physical health and wellbeing. The coach is a key contact for ensuring that upon leaving the Critical Care Western, Seniors will have productive, sustainable and healthy careers in Critical Care.

Imperative to any coaching program is frequent meetings and review of progress of the Seniors’ development. By meeting on a regular basis, clinical skill development can be monitored and specific needs met, research kept in motion with the goal of success, and Senior wellbeing can be ensured. The Portfolio is also reviewed at these meetings is also reviewed at these meetings. Nothing is worse than to discover a problem with a Senior’s training/research/personal issue at the end of the year, when a solution could easily have been instituted earlier in the year. The business of Critical Care is busy but we want to ensure the best training and mentoring from the outset. Mandatory meetings to be scheduled every three months (4 per year) is the minimum requirement. The trainee must initiate and stay in charge of these meetings to make them happen. If there is a problem of getting the meetings organized, please contact the PGE PD office.

If issues arise in any area, the meetings may become more frequent to ensure resolution of the problem. Documentation of these meetings should occur. The template for the meetings are attached. Documentation is necessary to record the issues for the trainee as well as the coach. The progress is copied and be presented to the program director as part of the Senior’s portfolio.

Attached is a list of coaches and Seniors as well as a form that can be used a framework for the quarterly reviews and documentation of the meetings in addition to Senior Portfolio management. This is only a framework. Not all questions have to be addressed at each meeting. These should be photocopied and both the coach and trainee should have copies on record. The research mentors may be different from coaches and are chosen by Seniors based on their research interests. There will be more details about this process in the research section of this document.

Created by: Christopher Martin (Chief Resident CCW) and MS June 2010
Updated MS June 2011
## COACHES AND ASSIGNED SENIORS

### 2013-2014

<table>
<thead>
<tr>
<th>Coaches</th>
<th>Seniors</th>
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<tbody>
<tr>
<td>Dr. Ravi Taneja</td>
<td>Dr. Mark Tutschka</td>
</tr>
<tr>
<td>Dr. Wael Haddara</td>
<td>Dr. Ernest Inegbu</td>
</tr>
<tr>
<td>Dr. John Fuller</td>
<td>Dr. Ana Igric</td>
</tr>
<tr>
<td>Dr. Lois Champion</td>
<td>***********************</td>
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<tr>
<td>Dr. Mithu Sen</td>
<td>***********************</td>
</tr>
<tr>
<td>Dr. Dalilah Fortin</td>
<td>Dr. Ahmed Hegazy</td>
</tr>
<tr>
<td>Dr. Karen Bosma</td>
<td>Dr. Marat Slessarev</td>
</tr>
<tr>
<td>Dr. Neil Parry</td>
<td>Dr. Asher Mendelson</td>
</tr>
<tr>
<td>Dr. Jeff Granton</td>
<td>Dr. Phil Andros</td>
</tr>
<tr>
<td>Dr. Ron Butler</td>
<td>Dr. Aws Alherbish</td>
</tr>
<tr>
<td>Dr. Scott Anderson</td>
<td>Dr. Garre Pulle</td>
</tr>
<tr>
<td>Dr. Tina Mele</td>
<td>Dr. Martin Cieslak</td>
</tr>
<tr>
<td>Dr. Ray Kao</td>
<td>Dr. Bourke Tillmann</td>
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<tr>
<td>Dr. David Leasa</td>
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<tr>
<td>Dr. Claudio Martin</td>
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<tr>
<td>Dr. Michael Sharpe</td>
<td>Dr. Mowaffaq Almikhalafi</td>
</tr>
<tr>
<td>Dr. Robert Arntfield</td>
<td>Dr. Edwin Wu</td>
</tr>
<tr>
<td>Dr. Bryan Young</td>
<td>Dr. Houman Khosravani</td>
</tr>
</tbody>
</table>

Created by: MS June 2010
Updated by MS October 2010, June 2011, June 2012, June 2013
Critical Care Western Senior Coach Program
Quarterly Meeting Form and Portfolio Review

Name of Senior: _____________________

Name of Coach: _____________________

Date of Meeting: _____________________  Portfolio Review: Y  N

**CLINICAL**

Identify areas of critical care in which deficits in knowledge or clinical practice are present (i.e. immunosuppressed patients, EEG interpretation)

Identify procedures which require more experience in performing (i.e. bronchoscopy, PAC catheter insertion)

Name 3 aspects/areas of clinical practice you would like to improve in the next 3 months. (i.e. Approach to the difficult to wean patient)

**ACADEMIC**

What is the current status of your research project? Future plans?

Timeline for research project including goals in the next 3 months?
Study Plan for Critical Care Exam

PERSONAL

Discuss level of stress and stress reduction mechanisms (fitness, diet, hobbies)

Plans for future (including family, job, social). Discuss methods to help the Seniors reach his/her career goals.

Created by: Christopher Martin (Chief Resident CCW) and MS June 2010, June 2011
“INSTRUCTIONS” FOR COACHES: DEVELOPING THE COACH ROLE

“A coach is an active partner in an ongoing relationship who helps the resident maximize his/her potential and achieve personal and professional goals.”

“You cannot teach a man anything. You can only help him discover it within himself.” - Galileo Galilei

Thanks for being a coach to one or two Seniors. Although a mentor can fulfill many roles we want you to be primarily a coach to the Senior. We want you to motivate, be a sounding board, and help guide in profitable directions.

Coaching is...
- A means for learning and development
- Guiding someone towards his or her goals
- The mutual sharing of experiences and opinions to create agreed-upon outcomes

Coaching is not...
- An opportunity to correct someone’s behaviours or actions
- Directing someone to take actions to meet goals
- Being the expert or supervisor with all the answers

At least four times per year we want you to review the Senior’s ‘working’ portfolio with him/her in a one-to-one meeting. This is their private collection of evidence that should satisfactorily demonstrate (to them and to you) the ongoing acquisition of skills, knowledge, attitudes, understanding and achievements needed to become an independent practising intensivist. This will reflect many of the CanMEDS Roles including Advocate and Professional to name a few. Our aim is to encourage the Senior to develop self-reflection and take charge of their own lifelong learning.

It is expected that the Senior will set up an appointment with you for this session. During this session the coach will provide brief written feedback that can be added to the Senior’s portfolio and copied to the PGE PD. A structured form has been developed for this purpose (see attached template).

Created by: DJL 2006; Updated DJL and MS June 2011

References:


CRITICAL CARE CHIEF SENIOR ROLE

There are two chief seniors in our program each year starting July 2011. These individuals are going into their final year of training. One position is elected by peers and the second is appointed by the Program Director and Residency Training Committee. Both are expected to work collaboratively fulfill their leadership roles, be ambassadors to our program, and oversee the aspects of our training program as below:

Responsibilities

1. Regularly liaise with all the senior critical care residents/fellows (Seniors) to note any concerns within the training program.
2. Represent the interests of the Seniors at the Residency Training Committee (RTC) and at other venues, as determined by the PGE Program Director to remind and report on completion of weekly feedback and mentorship meetings.
3. Organize the Senior call schedules for both CCTC and MSICU to ensure their timely submission to the site secretaries three weeks before the start of each block.
4. Participate in the interview and ranking process for applicants to the training program.
5. Organize the monthly Senior journal club.
6. Orientation: Meet with incoming new Seniors to discuss "nuts and bolts" of the residency.
7. Additional responsibilities as determined by the program director.

Allowance

A Chief Resident stipend is provided through Medical Affairs.

Process

The Residency Training Committee will choose the Chief Resident yearly in June, before the start of each academic year. The Chief Resident will be entering the last year of her/his critical care residency training.

Created: June 2009DJL; revised June 2010, 2011 MS
OUTSTANDING CRITICAL CARE SENIOR AWARD

Each year the Critical Care Western will recognize a one Critical Care resident or fellow who demonstrates excellence in the practice of critical care medicine. Nominees will be evaluated on the basis of outstanding contributions in clinical care, teaching, research, or advocacy in the care of the critically ill patient.

Examples of excellence may include: contributions as medical educators of peers and housestaff; service to the critical care community; availability as helpful, compassionate and knowledgeable experts to others; commitment to the welfare of patients and their families; commitment to high standards of clinical care and ethical conduct; or development of academic works with originality, merit, innovation, and scientific process.

Nomination Process

The following will be submitted to Program Director by May 15 of each academic year, for review by the Residency Training Committee:

- A nominating letter from one of:
  - a member of the Critical Care Western; the candidate’s coach or research mentor; another Critical Care Senior; any staff from within the LHSC critical care units.
- A copy of the candidate’s curriculum vitae.
- Support documents, as determined by the candidate, from the candidate’s dossier.

Award

The Residency Training Committee will review and adjudicate the submitted applications. There may not be an award every year as it is based on merit. A $500 award will be presented yearly at the June social event for the Critical Care Seniors. A plaque in honour of the yearly recipients will be displayed.

Created: June 2009DJL; revised June 2010 MS
SENIOR CURRICULUM

RCPSC Accreditation Goals and Objectives

There must be a clearly worded statement outlining the goals of the residency program and the educational objectives of the residents.

Interpretation

1. There must be a statement of the overall goals of the program.

2. There must be clearly defined objectives for each of the CanMEDS/CanMEDS-FM competencies.
   2.1 The educational objectives must be functional and reflected in the planning and organization of the program.
   2.2 The educational objectives must be reflected in the assessment of residents.

3. There must be specific educational objectives with respect to knowledge, skills, and attitudes for each rotation or other educational experience using the CanMEDS/CanMEDS-FM framework.
   3.1 The educational objectives must be functional and reflected in the planning and organization of the educational experience.
   3.2 The educational objectives must be reflected in the assessment of the residents.

4. The current goals and objectives must be distributed to all residents and faculty.
   4.1 The residents and faculty must use the objectives in teaching, learning, and assessment.
   4.2 When beginning a particular rotation or educational experience, individual learning objectives and strategies to meet those objectives should be developed by the faculty responsible and the individual resident.

5. The statement of goals and objectives must be reviewed regularly (at least every 2 years) by the program director and the residency program committee to determine the appropriateness of the objectives and how well they are reflected in the organization of the program and the assessment of the residents.

CRITICAL CARE WESTERN CURRICULUM

The Critical Care Western curriculum is organized over 26 blocks (24 months) to meet the accreditation standards of the Royal College. Curriculum content is guided by the RCPSC Specific Standards of Accreditation for Residency Programs in Critical Care Medicine. Academic half-day occurs weekly on Thursday afternoons from 1200-1500 hrs. Seniors are excluded from clinical duties and are expected to attend.

For Critical Care residents in combined programs with a primary specialty (e.g., Emergency Medicine/Critical Care) it is expected that the 24 month Critical Care curriculum will be fulfilled over the duration of the critical care training, whether this occurs over two years or three years.

10 RCPSC General Standards Applicable to all Residency Programs – B Standards 2012

Residents are regularly informed about these rounds and may attend, if interested:

- Western University PGME Academic Half Day (Medical Sciences Building)
- DOM rounds by site (UH, VH)

An up-to-date curriculum schedule will be maintained on One45.

CRITICAL CARE WESTERN GRAND ROUNDS

Critical Care Grand Rounds will be held every last Friday of the month at 7 am, alternating at both sites.

Format

- Multidisciplinary, varied format rounds 45 minute in length followed by a question/discussion period. A critical care consultant/delegate will be identified for each round to be responsible for introduction of speaker and act as a moderator for the session.

- Types of presentations may include patient cases with clinical discussions; basic/clinical research pertinent to critical care medicine; information sessions pertinent to the practice or management of critical care, e.g., clinical update from a critical care meeting.

- Speakers may be critical care or other consultants or other visiting/invited speakers.

*Critical Care Rounds are an accredited Category 1 group learning activity as defined by the Maintenance of Certification (MOC) Program of the Royal College of Physicians and Surgeons of Canada – CME maintained by Dr. Mithu Sen.*

SENIOR JOURNAL CLUB

The purpose is to review the latest important journal articles in the field of critical care and to assist the Seniors in honing their critical appraisal skills. It also fosters consultant/Senior camaraderie in a more informal atmosphere.

Format

- This will occur on even numbered months. One Senior is paired with one Consultant. The schedule is sent out at the beginning of each academic year.

- The Senior and the Consultant who are organizing the journal club for their month agree upon the exact date.

- The Senior is responsible for choosing two to three articles in the field of critical care from eminent medical journals. The articles are reviewed by the Consultant for approval. Once approved the articles are circulated to the Seniors for review, at least one week before the journal club.
● The Senior who chooses the articles is responsible for providing a summary of one of the articles at the journal club. He/she delegates, in advance, other Seniors to discuss the other articles. All Seniors are expected to read the articles and come prepared to discuss them.

● The Consultant is responsible for arranging a venue for the journal club and inviting one or two other Consultant(s) to attend the journal club. It is suggested that no more than three Consultants attend the journal club to facilitate Senior discussion with expert opinion coming from the consultants.

JUNIOR JOURNAL CLUB

The Senior will select a relevant clinical article from the current literature; best in relation to a current patient problem. He/she will review and critically appraise the article in an interactive discussion.

● identify whether or not the results of the study are valid
● interpret the results
● apply the results to patients

Format

The Senior resident picks the article, one week in advance and gives to the Site Administration Office by Friday (the week before). Copies of the articles will be distributed to the Seniors, Juniors, and all ICU Consultants. The ICU Site Administration Offices will be responsible to set the schedule for the Seniors.

The appraisal should follow user guides. Ideally, the Senior should enter the appraisal within his/her portfolio after the Journal Club (to incorporate comments/feedback from the group).

PATHOLOGY ROUNDS – UH

Purpose

● Review selected ICU deaths with pathology
● Allow open discussion regarding these deaths

Format

● Case identification and presentation by the ICU consultant or Senior
● Review of the organ and microscopic pathology by the Pathologists

COLLABORATIVE QUALITY IMPROVEMENT (CQI) ROUNDS – VH

Purpose

● Bring forward patient care issues that have been identified as problematic
● Allow open discussion regarding these issues
● Develop proposals to improve the delivery of safe and efficient patient care
• Encourage a working environment in which staff are open and honest about patient care deficiencies

Format
• Interdisciplinary input, including staff physicians, house staff, nurses, RTs, physiotherapists, pharmacists and dietitians.
• Case presentations that focus on common patient care problems
• Where applicable, evidence based medicine will be applied to the cases
• If applicable, the care will be compared to that set forth in critical care protocols. If care was not within the parameters of the protocols then reasons for this will be explored.
• Cases will be categorized:
  o Provider, equipment or system related?
  o Contributing factors?
  o Did or could it contribute to harm?
  o Was the situation preventable?
  o What can be done in the future to improve the situation?
• Recommendations generated from these rounds will be brought to site council
• Resolution or lack of resolution will be communicated back to critical care staff

IMAGE ROUNDS – UH

*If ‘one picture is worth a thousand words’, then a video must be worth a thousand pictures!*

Each week (Fridays at 1300 hrs), the ‘Day Only’ Senior will identify, present, and briefly discuss (maximum of 30 minutes) a case with an associated image(s) or video clip that provides a visual example of an important or common concept pertaining to the practice of critical care medicine. The information presented will be intended to help residents and medical students recognize important or common conditions and assist them in making more timely, accurate diagnoses. Important landmarks/features within the image or video clip or will be clearly identified for the audience.

Examples:
• EEG recording identifying seizures
• CT scan of the abdomen (e.g., acute abdomen)
• ECG recording(s) of an arrhythmia
• CT of the thorax (e.g., thromboembolic disease)
• ICU echocardiogram or ultrasound
• Biochemical or hemodynamic profile
• Ventilator profile and tracings
• CT/MRI/angiogram brain (e.g., SAH, intracerebral hemorrhage, stroke)
• Pulmonary function study interpretation
The Senior will seek assistance from an expert in the field (e.g., neuroradiologist) and review the image or video clip with that individual before the session. The CCOT consultant will be present at the rounds. A catalogue of the assets will be maintained on-line for future reference.

**Suggested Format:**
- Brief relevant summary of the case.
- Presentation of the image or video clip.
  - Description of the normal anatomy or recording (if pertinent).
  - Discussion of the relevant abnormalities.
  - Differential diagnosis for the findings.
- Present summary comments, along with any important reference(s).

**VENTILATOR QUALITY IMPROVEMENT (VQI) AT VH**

**CCTC**
Monthly, third Friday morning, CCTC conference room following the format of CQI Rounds

The following themes are fertile ground for discussion for both MSICU/CCTC:
- Weaning and liberation from invasive mechanical ventilation: Using daily spontaneous awakening trials (SATs) and spontaneous breathing trials (SBTs).
- Reducing ventilator-induced lung injury.
- Understanding ventilator modes.
- Optimizing patient-ventilator synchrony.
- Managing the intubated patient with airflow limitation. Identifying and measuring auto PEEP
- Troubleshooting noninvasive ventilation (NIV).
- Issues pertaining to prolonged mechanical ventilation after critical illness.
- How to use the HFOV.

**ICU BOARD ROUNDS – VH**

ICU Board Rounds are based on the concept of tumor board rounds, a treatment planning approach, in which experts from different medical specialties review and discuss the medical condition, prognosis and treatment options for a patient.

**Goals**
For challenging critically ill patients:
- To proactively review and agree on the appropriate level of life support, including long term ventilation and chronic ventilation.
- To proactively/explicitly plan the transition from curative to palliative care.
- To support patients, substitute decision makers and members of the critical care team with making and enacting life support decisions.
**Patient Selection**

One or two patients will be selected for discussion at each Round, based on suggestions from the critical care team. Factors that can be considered include:

- Perception of inappropriate level of life support by family or team.
- Elderly (>80 years) with ICU stay > 5 days.
- Difficulty weaning from the ventilator, defined by chronically critically ill >21 days.
- Non-transplantable/replaceable, irreversible, single or multi-organ or system failure.
- Progressive neurologic disease (dementia, MS, ALS, MD).
- Metastatic/life limiting cancer.
- Procedure based identifiers: tracheostomy, PEG.
- Recurrent ICU admissions: Two or more ICU admissions within the same hospitalization.
- Family/SDM/HCP distress or differences impairing decision-making.
- Consideration of ventilator withdrawal with expected death.
- Expected decline in QoL
- Limitations to acute care: by disease, choice.

**Format**

- Summary of case and current status (organ failures, major interventions) by the ‘Day/CCOT’ Senior.
- Discussion of prognosis – immediate, intermediate and distant time frames; include patient/family perspective and goals of care.
- Discussion of treatments we consider appropriate to continue or offer in future.
- Aim to reach consensus on a proposed plan of care (big picture level). Note: A successful outcome from these rounds can be a recommendation to continue aggressive life support as well as placing limits or recommending transition to palliative care.

**Outcomes**

Basic case characteristics and outcomes of the discussion will be documented.

DJL  Created: July 2003.
Revised: July 2004; August 2005; June 2006; June 2007; June 2008; February 2009; June 2000, June 2010 MS
CRITICAL CARE WESTERN EVALUATION FORMS

1. **Senior End-of-Rotation In-Training Evaluation Report (SrITER)**
   This form must be completed by the attending consultants at the completion of a clinical rotation. It will be reviewed with the Senior. A ‘web friendly’ version is used within the One45® database.

2. **Scholarly Inquiry Project In-Training Evaluation Report**
   This form must be completed on each Senior at the completion of a dedicated research rotation. A ‘web friendly’ version is used within the One45® database.

3. **Witnessed Communication Form**
   This form is to be completed during MSICU and CCTC rotations (~2/month). The Senior is responsible to ensure that it is completed and placed within their portfolio.

4. **Weekly Performance Feedback Form**
   This form is completed following brief review with the ICU consultant at the end of a MSICU/CCTC/CSRU week and provides a weekly performance feedback. A ‘web friendly’ version is used within the One45® database.

5. **Clinical Preceptor Evaluation Form**
   This form is completed by each Junior resident on each Senior at the completion of a clinical rotation. This information will be tabulated and reported back to the Senior by the Program Director.

6. **Coach Action Planning Worksheet - Quarterly**
   This worksheet helps to establish an action plan that is agreeable to both Senior and his/her coach. It includes specific measures of success and a target review date for any actions to be completed by the Senior.

Created: June 2008; July 2009 DJL
Modified: MS June 2010, June 2013