Goal

The rotation in the Medical Intensive Care Unit at HSC is designed to allow the resident to encounter patients with tertiary care medical problems requiring ICU admission. Common problems encountered will include cardiorespiratory failure, immunocompromised patients, patients with hepatic failure, poisoning, post cardiac arrest patients, and patients with multiorgan system failure/dysfunction. Experience with these patients will enable the resident to develop the knowledge, skills, and attitude necessary to be a Critical Care physician as outlined in the “Goals and Objectives” document of the University of Manitoba program. Specifically, those objectives that deal with Medical Intensive Care are to be considered during this rotation. The program anticipates that opportunity will arise during the rotation for the resident to achieve many other objectives from the list.

This unit is a 15-bed closed unit where all patients are managed by the Intensive Care Team with consultation as needed.

Expectations during the rotation

The Critical Care resident will personally review each ICU admission, identify the major surgical and medical problems, prioritize those, and initiate a plan for investigation and management. A Critical Care attending will review patients admitted and patient care decisions, and participate actively on rounds with the resident. The resident will direct and assist the rotating residents in the clinical assessment and management of patients. Residents will assess patients referred from the wards or Emergency Department regarding the need for ICU admission. The resident will participate in morning and evening rounds, and take a leadership role in identifying patient management issues on rounds. The resident will participate effectively in patient care decisions with consultants and referring physicians. The resident will provide some evening and weekend in-hospital coverage in the unit during their rotation to get exposure to issues that develop during this period.

The resident will function as leader of the Code Blue Team at HSC during their rotation in MICU. They may provide direct patient care, or supervise rotating residents in these activities.

The residency is a two-year program with a minimum of 48 weeks of ICU rotations over two years. Objectives will vary as the resident advances in experience and knowledge. It is recognized that Critical Care Residents have different training backgrounds and that the attainment of the goals and objectives will occur at a different rate and at different stages of the residency.

Objectives for rotations where the resident has <30 weeks of total ICU exposure

Medical Expert
The resident will:
Attempt to meet as many as possible of the objectives outlined in the program’s “Goals and Objectives” document. This includes the acquisition of the knowledge, skills, and attitudes, necessary to function effectively in a tertiary care medical intensive care unit.

Specifically on this rotation the resident will demonstrate basic knowledge of
1. Resuscitation of critically ill patients including management of cardiac arrest patients during and after resuscitation.
2. Resuscitation and management of patients with septic shock or other life-threatening infections.
3. Resuscitation and management of patients presenting with acute coronary syndromes or complications following acute coronary syndrome.
4. Resuscitation and management of patients with seizure disorders.
5. Mechanical ventilation and management of patients with Acute Lung Injury.
6. The ability to formulate a differential diagnosis for a patient potentially suffering from a toxic syndrome and undertake a sequential plan to support organ function, prevent further absorption, alter distribution, and if possible, enhance elimination by natural and mechanical means.
7. The ability to recognize the problem of a patient with jaundice and/or manifest hepatic failure, provide for immediate life-sustaining support, and develop a diagnostic and therapeutic plan.

The resident will also demonstrate an understanding of
1. The pathophysiology and management of acute and chronic liver disease. The biosynthetic, immunologic, and detoxification functions of the liver.
2. The liver transplant patient, including perioperative issues, pharmacological management, potential complications.
3. The diagnosis and management of fluid and/or electrolyte disturbances
4. The diagnosis and management of acid-base disturbances
5. Dialysis support in ICU including continuous renal replacement therapy, and intermittent dialysis.
6. Intra-aortic balloonpumps-physiologic effects, triggering, timing, and troubleshooting.
7. Pacemakers - modes, complications, and settings that can be adjusted by the physician.
8. Principles and techniques of invasive hemodynamic monitoring including practical knowledge of how to set up and troubleshoot the equipment required for CVP or PA pressure monitoring.
9. Acuity scoring systems (eg APACHE score; SAPS score) and nursing workload scores (TISS)
10. The ability to recognize the problem of a patient with a malignancy, a thrombotic or thrombolytic disorder, bleeding, neutropenia, or anemia, provide any indicated life-sustaining support, and proceed with an orderly course of investigation, management, continued monitoring, and support.
11. End of life issues and decision making.
12. Knowledge of nutrition including ordering appropriate enteral and parenteral nutritional prescriptions.

The resident will demonstrate the following skills during this rotation
1. Insertion of central lines following the accepted standards of practice.
2. Insertion of arterial lines following the accepted standards of practice.
3. Intubation of the trachea in patients with uncomplicated airways.
4. Insertion of chest tubes – large bore and "pigtail" catheters
5. Insertion of small bowel feeding tubes
6. Family discussions about prognosis and treatment plan.
7. Interpretation of chest radiographs in critically ill patients.

COMMUNICATOR

Specific Requirements
1. Assess, communicate with, and support patients and families confronted with critical illness.
2. Explain life-sustaining therapies, in clear language, and describe the expected outcome of such therapies in view of the patient’s goals and wishes.
3. Know and understand the consequences of the language used to impart information.
4. Be acquainted with the unique stressful environment of the critical care milieu for patients and their families.
5. Demonstrate respect and understanding for the role of other team members in communicating and facilitating decision-making with critically ill patients and their families.
6. Communicate effectively with families who may be dysfunctional, angry, confused, or litigious.

COLLABORATOR

General Requirements
The adult critical care medicine resident must be able to:
1. Consult effectively with other physicians and health care professionals
2. Contribute effectively to interdisciplinary team activities

Specific Requirements
1. Contribute to productive communication and cooperation among colleagues in all aspects of education, service, and research, as they impact on the critical care environment, recognizing the multi-disciplinary nature of the specialty.
2. Identify and describe the role, expertise and limitations of members of an interdisciplinary critical care team needed to provide appropriate goal-related patient care, research, education, and administrative functions.
3. Develop a care plan for a patient they have assessed, including investigation, treatment and continuing care, in collaboration with the members of the interdisciplinary critical care team.
4. Participate in an interdisciplinary team meeting, demonstrating the ability to accept, consider and respect the opinions of other team members, while contributing specific expertise
5. Effectively communicate with the members of the interdisciplinary critical care team to resolve conflicts, provide feedback, and assume a leadership role when appropriate.

MANAGER
General Requirements
The adult critical care medicine resident should be able to:
1. Allocate finite health care resources wisely
2. Work effectively and efficiently in a health care organization
3. Utilize information technology to optimize patient care, life-long learning, and other activities
4. Utilize personal resources effectively to balance patient care, learning needs, and outside activities

Specific Requirements
1. Demonstrate the ability to acquire, interpret, synthesize, record, and communicate (written and verbal) clinical information in managing health problems in the critical care setting.

HEALTH ADVOCATE

General Requirements
The adult critical care medicine resident should be able to:
1. Identify the important determinants of health affecting patients
2. Contribute effectively to the improved health of patients and communities

Specific Requirements
1. Understand the importance of medico-legal considerations for the critically ill.

SCHOLAR

Specific Requirements
1. Demonstrate the expertise necessary for rational use of the principles of “evidence based medicine” in both clinical settings.
2. Demonstrate the ability to efficiently access information from the medical literature using current information retrieval tools.
3. Practice the principles of adult learning and help others learn by providing guidance and constructive feedback.

PROFESSIONAL

General Requirements
The adult critical care medicine resident should be able to:
1. Deliver the highest quality care with integrity, honesty, and compassion
2. Exhibit appropriate personal and interpersonal professional behaviours
3. Practice medicine ethically consistent with the obligations of a physician

Specific Requirements
1. Be aware of, and understand, moral and ethical issues as they impact on patients, their families, and critical care providers.
2. Understand the role and responsibilities of the critical care physician at the local, regional, and national levels.
3. Develop and demonstrate 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.

**Objectives for rotations where the resident has >30 weeks of total ICU exposure**

*The resident will:*

Continue to attain as many as possible of the objectives outlined in the program’s “Goals and Objectives” document. This includes the acquisition of the knowledge, skills, and attitudes, necessary to function effectively in a tertiary care surgical intensive care unit. This includes all of the objectives listed for residents with <30 weeks of total ICU exposure.

The resident will take on more supervisory roles overseeing the activities of the rotating residents delivering patient care. The attending physician will still supervise the resident, but more autonomy will be expected. The resident will gradually become a principal leader in daily ward rounds, acting as a consultant to the house staff and identifying the major patient care decisions. This will be accomplished by allowing the resident to independently run rounds at least twice per week. The residents will regularly discuss each patient with the supervising attending physician, and demonstrate insight into requesting assistance when needed.

Residents doing this rotation with more than 40 weeks of ICU experience must demonstrate the ability to function as an independent consultant, although the resident will still have continuous attending backup. Residents with this level of ICU experience will continue to provide in-hospital medical coverage to the unit. This will help develop autonomy, as they will be capable of handling many issues without direct input from their attending physician.

**All of the following CanMEDS objectives are expected at the level of an independent consultant during this phase of training.**

**MEDICAL EXPERT**

*Specifically on this rotation the resident will demonstrate advanced knowledge of:*

1. Resuscitation of critically ill patients including supervising the management of cardiac arrest patients.
2. Airway management in patients with difficult airways
3. End of life issues and decision making including ability to discuss and teach around these issues with junior physicians and allied health care workers.

*The resident will demonstrate the following skills during this rotation:*

1. Supervision and teaching of rotating residents inserting central lines following accepted standards of practice. This will include use of ultrasound for line placement.
2. Supervision and teaching of rotating residents inserting arterial lines following accepted standards of practice.
3. Supervision and teaching of rotating residents doing other common unit procedures.
4. Bed management in the ICU.
5. Basic knowledge of axial anatomy when interpreting CT scans of head, chest and abdomen.

**COMMUNICATOR**

*General Requirements*
The adult critical care medicine resident must be able to:
1. Establish relationships with patients/families
2. Listen effectively
3. Obtain and synthesize relevant history from patients/families/communities
4. Discuss appropriate information with patients/families and the health care team

Specific Requirements
1. Assess, communicate with, and support patients and families confronted with critical illness.
2. Explain life-sustaining therapies, in clear language, and describe the expected outcome of such therapies in view of the patient’s goals and wishes.
3. Know and understand the consequences of the language used to impart information.
4. Be acquainted with the unique stressful environment of the critical care milieu for patients and their families.
5. Demonstrate respect and understanding for the role of other team members in communicating and facilitating decision-making with critically ill patients and their families.
6. Communicate effectively with families who may be dysfunctional, angry, confused, or litigious.
7. Explain the concept of brain death and organ donation, in clear language.

COLLABORATOR

General Requirements
The adult critical care medicine resident must be able to:
1. Consult effectively with other physicians and health care professionals.
2. Contribute effectively to interdisciplinary team activities.

Specific Requirements
1. Contribute to productive communication and cooperation among colleagues in all aspects of education, service, and research, as they impact on the critical care environment, recognizing the multi-disciplinary nature of the specialty.
2. Demonstrate knowledge and skill in preventing and resolving conflict.
3. Demonstrate leadership in the continuing education of members of the multi-disciplinary health care team.
4. Identify and describe the role, expertise and limitations of members of an interdisciplinary critical care team needed to provide appropriate goal-related patient care, research, education, and administrative functions.
5. Develop a care plan for a patient they have assessed, including investigation, treatment and continuing care, in collaboration with the members of the interdisciplinary critical care team.
6. Participate in an interdisciplinary team meeting, demonstrating the ability to accept, consider and respect the opinions of other team members, while contributing specific expertise.
7. Describe how health care governance influences critical care delivery, research and educational activities at a local, provincial, regional, and national level.
8. Effectively communicate with the members of the interdisciplinary critical care team to resolve conflicts, provide feedback, and assume a leadership role when appropriate.
**MANAGER**

*General Requirements*

*The adult critical care medicine resident should be able to:*

1. Allocate finite health care resources wisely.
2. Work effectively and efficiently in a health care organization.
3. Utilize information technology to optimize patient care, life-long learning, and other activities.
4. Utilize personal resources effectively to balance patient care, learning needs, and outside activities.

*Specific Requirements*

1. Be familiar with the administrative organization required to operate an Intensive Care Unit within an acute urban or rural hospital.
2. Be knowledgeable regarding unit staffing requirements, skills, education, and organization.
3. Be able to evaluate and cooperatively determine unit equipment requirements.
4. Be able to manage the clinical, academic, and administrative affairs of an Intensive Care Unit.
5. Demonstrate the ability to acquire, interpret, synthesize, record, and communicate (written and verbal) clinical information in managing health problems in the critical care setting.

**HEALTH ADVOCATE**

*General Requirements*

*The adult critical care medicine resident should be able to:*

1. Identify the important determinants of health affecting patients.
2. Contribute effectively to the improved health of patients and communities.

*Specific Requirements*

1. Understand, in general, the diverse determinants of health, disease, and illness, and relate occupational and environmental exposures, socio-economic factors, and lifestyle factors to critical illness.
2. Understand, in general, the health care system and more specifically the structure, function, and financing of critical care units.
3. Understand the importance of medico-legal considerations for the critically ill.
4. Be able to communicate to the general population critical care issues and their impact on the maintenance and improvement of health care.

**SCHOLAR**

*General Requirements*

*The adult critical care medicine resident should be able to:*

1. Facilitate the learning of patients/families, housestaff/students and other health professionals.
2. Contribute to the development of new knowledge.
3. Develop, implement, and monitor a personal continuing education strategy.

*Specific Requirements*

1. Demonstrate the expertise necessary for rational use of the principles of “evidence
based medicine” in both clinical and research settings.

2. Demonstrate the expertise to competently appraise:
   i. levels of evidence
   ii. interventions
   iii. diagnostic tests
   iv. prognosis
   v. integrative literature (meta-analyses, practice guidelines, decision and economic analyses)

3. Demonstrate a basic understanding of biostatistics, study design, protocol writing, and manuscript preparation.

4. Demonstrate the ability to efficiently access information from the medical literature using current information retrieval tools.

5. Practice the principles of adult learning and help others learn by providing guidance constructive feedback.

6. Be familiar with the concepts of basic applied research and epidemiology in order to capably evaluate newer forms of therapy.

PROFESSIONAL

General Requirements

The adult critical care medicine resident should be able to:
1. Deliver the highest quality care with integrity, honesty, and compassion.
2. Exhibit appropriate personal and interpersonal professional behaviours.
3. Practice medicine ethically consistent with the obligations of a physician

Specific Requirements
1. Be aware of, and understand, moral and ethical issues as they impact on patients, their families, and critical care providers.
2. Understand the role and responsibilities of the critical care physician at the local, regional, and national levels.
3. Develop and demonstrate 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.

Upon completion of the training program the resident will be able in each of the following objectives to:
1. Display attitudes commonly accepted as essential to professionalism
2. Use appropriate strategies to maintain and advance professional competence
3. Continually evaluate one's abilities, knowledge and skills and know one's limitations of professional competence.
4. Adopt specific strategies to heighten personal and professional awareness and explore and resolve interpersonal difficulties in professional relationships.
5. Strive to balance personal and professional roles and responsibilities and to demonstrate ways of attempting to resolve conflicts.
6. Know and understand the professional, legal and ethical codes to which physicians are bound.
7. Understand and be able to apply relevant legislation that relates to the health care system in order to guide one’s clinical practice
8. Recognize, analyse and know how to deal with unprofessional behaviours in clinical practice, taking into account local and provincial regulations.

Design of the Rotation:
Each resident will complete at least 2 four-week rotations in their clinical year of training in this unit. The designated rotational supervisor is the unit director, Dr. Dan Roberts.

**Evaluation of the Resident, and Feedback:**
1. The Critical Care resident is to have an ITER completed by each attending that the resident worked with for at least one week during that rotation. It is the responsibility of the resident to arrange a time with the attending physician near the end of the attending’s week to have the evaluation form completed and to receive the needed feedback. Attendings may collaborate and do a group evaluation based on their collective experience. At least one group evaluation needs to be produced for every rotation, if each attending is not completing an individual ITER.
2. Faculty will produce a group evaluation of the resident 3 or 4 times per year.

**Evaluation of the Rotation and Faculty teaching:**
*Each resident will have opportunity to evaluate the rotation. This will take the form of:*
1. Completion of a confidential “Rotation evaluation” form (optional).
2. Residents will participate in a group evaluation of all faculty and units two times per academic year (mandatory).
3. Residents will meet with the program director 3-4 times per year to discuss their progress and their evaluation of the rotations.

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