Curriculum: VCMC ICU Residency

Background: Family Physicians are one the most broadly trained physician specialists in health care. Knowledge, skills, and attitude acquisition in critical care medicine continues to be an integral part of Family Medicine training. There is a need for family physicians to provide care to critically ill patients, especially in rural areas. Critical care embodies the provision of intensive care with the highest utilization of resources to those individuals facing life-threatening illnesses. Family Physicians must be competent in the recognition, diagnosis, and initial resuscitation of critically ill patients. They must also become competent in the coordination of care across the continuum from initial resuscitation, critical care, transport to higher levels of care if necessary, discharge to long term care and an understanding of the impact of critical illness on the psychosocial aspects of the patient and their family.

Essential areas of competency:

1. ***Respiratory***:

- ☐ *a. Ventilation*: Identify patients needing intubation. Initial ventilator settings. Troubleshooting ventilators. Extubation criteria. Use of non-invasive ventilation
- ☐ *b. Rapid sequence intubation*: Indications. Induction and sedative medications. Difficult airway identification and strategies to mitigate.
- ☐ *c. Acute Respiratory Failure:* All types including Adult Respiratory Distress Syndrome (ARDS) and hypercarbic/hypoxic respiratory failure. Know use of both invasive and non-invasive techniques
- ☐ *d. Arterial Blood Gas:* Interpretation and implementation

2. ***Cardiovascular***:

- ☐ a. *Heart failure*: Familiarity with range from mild cardiac failure to cardiogenic shock management
- ☐ b. *Shock*: Types and initial management. Use and types of vasopressors.
- ☐ c. *Acute Coronary syndrome:* Identification and management. when to transfer for cardiac catheterization
- ☐ d. *ACLS/acute arrhythmias:* EKG interpretation and subsequent management.
- ☐ e. *Hypertensive emergencies*- Urgency vs Emergency. Management with vasoactive drips and with comorbid conditions i.e. intracranial hemorrhage, aortic dissection

3. ***Renal***:

- ☐ a. *Acute Kidney Injury (AKI)*: Diagnosis and etiology. Management and strategies to mitigate. Indications for renal replacement therapy and basic knowledge of CRRT
- ☐ b. *Acid/Base interpretation*: ABG interpretation

4. ***Infectious Disease***:

- ☐ a. *Septic shock*: Definition and management. Determine etiology. Initial resuscitation with IV crystalloid and when to start vasopressors.
- ☐ b. *Antibiotics*: Initial broad spectrum and how to narrow
- ☐ c. Pneumonias: Community Acquired, Health Care Associated Pneumonia, Ventilator Associated pneumonias, classifications, treatments, and management
- ☐ d. Hospital Associated Infections (HAI): Central Line Associated Blood Stream Infection (CLABSI), CAUTI, (Catheter Associated Urinary Tract Infection), VAP (Ventilator Associated Pneumonia), HCAP, (Heath Care Associated Pneumonia), diagnosis, treatment, documentation

5. ***Hematologic***:

- ☐ a. Coagulopathy and hemorrhage: Determine etiology. Interpret ROTEM. Massive transfusion protocol (MTP). Complications such as TRALI/TACO, DIC, Coagulopathy in Trauma, Anticoagulants and reversal agents

6. ***Drugs***:

- ☐ a. *Vasopressors*: Mechanism of action. Specific uses. Use of invasive cardiac monitoring
- ☐ b. *Sedatives, paralytics and analgesics:* Mechanism of action. Specific uses. Contraindications. Side effects.

7. ***Specific Conditions:***

- ☐ a. *Diabetic Ketoacidosis* (DKA): Correction of severe metabolic acidosis. Insulin drip management.
- ☐ b. *Pulmonary Embolism* (PE): Criteria for use of thrombolytics and subsequent management.
- ☐ c. *Acute liver failure:* Hepatic Encephalopathy, hepatorenal syndrome, APAP overdose.
- ☐ d. *Trauma*: Stabilization of the critically traumatized patient. Identification and management of pneumo/hemothorax. FAST exam. Criteria for MTP.

8. ***Procedures and Quality Improvement:***

- ☐ a. Competency with central lines/HD lines, chest tube/pigtail, arterial line, POCUS and ultrasound guided procedures.
- ☐ b. Recognition of risk for factors for hospital-acquired infection and familiarity with protocols to prevent them. Specifically central line-associated bloodstream infection (CLABSI), catheter-associated urinary tract infections (CAUTI), ventilator associated pneumonia (VAP) and clostridium difficile infection.

9. ***Psycho-social:***

- ☐ a. *Palliative*: Ability to conduct a family meeting to discuss goals of care and give medical updates. Know how to appropriately discuss code status, escalation/de-escalation of care.
- ☐ b. *ICU delirium* – Identification and management. Appropriate drug use.
- ☐ c. *Communication:* Open and timely communication with consultants/nursing/RT/etc. (multi-disciplinary approach)

10. ***Neurology***:

- ☐ a. Hemorrhagic and ischemic stroke management
- ☐ b. Traumatic brain injury
- ☐ c. Post-op management of elective/urgent neurosurgical procedures
- ☐ d. Spinal Cord Injury

The goal is procedural competency and sign-off by second year to be prepared for ICU night coverage.

Each resident is expected to track their individual experience with the above checklist and address any deficient areas of study. Please reference ICU website (vcmcicu.com) and speak with faculty for help with completing competencies. Residents will be given feedback throughout their rotation on their progress.