



# **STANDARDIZED MODULES AND OBJECTIVES**

## **INTRODUCTION**

The recognition of Critical Care Paramedic in Tennessee has been established by the Emergency Medical Services Board as a skills set above that received in the Initial Paramedic Training. The Emergency Medical Services Board has identified a scope of practice for the Critical Care Paramedic in Tennessee. Therefore the Critical Care Paramedic Modules were designed to create continuity within Critical Care Paramedic Training in Tennessee to ensure all programs were consistent with the overall terminal objective a competent safe and efficient Critical Care Paramedic capable of practicing within the Scope of Practice identified within the Emergency Medical Services Rules and Regulations. The committee members felt it necessary to identify a standard of objectives that must be met in every program but not to design a standard curriculum. The committee felt it should be up to the training program to design their own or select a curriculum already in existence which met the standard objectives identified in this document and approved by the EMS Board. The committee would thank the State of Iowa for sharing their curriculum design for a model for the committee to utilize. We would also thank the Middle Tennessee Critical Care Program for sharing their original Critical Care Paramedic Program and the Baltimore Critical Care for their input as well.

### **Prerequisites:**

The following are required prerequisites for individuals entering a Critical Care Paramedic Training Program:

1. must be currently licensed as a Paramedic with a minimum of two year experience as an Advanced Care Provider.
2. must hold current completion verification in an Advanced Cardiac, Advanced Pediatric, and Advanced Trauma Course and a current completion verification of Basic Life Support Healthcare Provider

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# MODULE: MEDICAL-LEGAL

## TERMINAL OBJECTIVES:

At the completion of this unit of instruction, the participant shall be able to:

1. Describe the legal basis for the education, performance and responsibilities of a critical care Paramedic.

## COGNITIVE OBJECTIVES

At the completion of this unit of instruction, the participant shall be able to:

1. Explain and discuss Federal and State rules and laws regarding medical control, communications, standards of care, and the Critical Care scope of practice as it relates to the Critical Care Paramedic
2. Summarize the legalities and liabilities involved in critical care transports
3. Understand the “COBRA”/ EMTALA regulations and the implications for EMS
4. Discuss elements of litigation, hearings, and testifying in court
5. Identify payers and procedures pertaining to reimbursement and how it effects the Critical Care Paramedic
6. Summarize the procedures for accepting a critical patient and the Critical Care Paramedics responsibilities during the transport
7. Document a critical transport report
8. Describe the roles and responsibilities of other health care providers that may accompany a critical patient

## PSYCHOMOTOR OBJECTIVES

**There are no psychomotor objectives in this unit.**

## AFFECTIVE OBJECTIVES

At the completion of this unit of instruction, the participant shall be able to:

1. Value the importance of practice within the scope of a critical care paramedic.
2. Adhere to rules, regulations and practice within the scope of practice for a critical care paramedic.

## INSTRUCTOR QUALIFICATIONS

Experienced critical care professional and attorney and experienced billing manager or State or Federal insurance representative. Instructors should be capable and able to encourage interactive learning and facilitate discussions on the topic.

## **MINIMAL EQUIPMENT NEEDS AND INSTRUCTOR RESOURCES**

### **Visual aids and resources**

1. Multiple scenarios reflecting medical / legal issues regarding the critical Case study scenarios promoting participants to make Clinical decisions.

## **MINIMUM TIME FOR MODULE**

3 hours

# MODULE: RESPIRATORY

## TERMINAL OBJECTIVES:

At the completion of this unit of instruction, the participant shall be able to:

1. Integrate concepts of respiratory anatomy and physiology and pathophysiology into the assessment and management of the adult critical care patient.
2. Formulate a treatment plan to include pharmacological and mechanical interventions for the patient with a respiratory compromise.

## COGNITIVE OBJECTIVES

At the completion of this unit of instruction, the participant shall be able to:

1. Discuss the anatomy and physiology of the respiratory system
2. Assess the respiratory system
3. Define ventilation.
4. Compare inspiration and expiration as to the direction of air movement, use of energy, and muscles involved.
5. Define the following terms related to ventilation, including elastance, surfactant, compliance, airway resistance, work of breathing, tidal volume, anatomic dead space, and alveolar ventilations.
6. List significant inspection findings related to respiratory distress.
7. Relate assessment findings determined by palpation.
8. Identify adventitious sounds that are characterized as continuous and discontinuous.
9. Relate clinical conditions that produce crackles, wheezes and rhonchi.
10. Formulate a management plan for transporting the patient in respiratory failure.
11. Interpret acid-base balance and arterial blood gases
12. Discuss the physiology of ventilation and respiration.
13. Identify common pathological events that affect the pulmonary system.
14. Discuss abnormal assessment findings associated with pulmonary diseases and conditions.
15. Compare various airway and ventilation techniques used in the management of pulmonary diseases.
16. Review the pharmacological preparations that Critical Care Paramedics may use for management of respiratory diseases and conditions.
17. Review the use of equipment used during the physical examination of patients with complaints associated Describe the epidemiology, pathophysiology, assessment findings, and management for the following respiratory diseases and conditions:
  - a. Bronchial asthma
  - b. Chronic bronchitis
  - c. Emphysema
  - d. Pneumonia
  - e. Pulmonary edema
  - f. Spontaneous pneumothorax
  - g. Adult Respiratory Distress Syndrome
  - h. Pulmonary thromboembolism

18. Discuss the indications, contraindications, complications, equipment, and techniques for the following:
  - a. Tracheobronchial suctioning for the intubated patient
  - b. Alternative methods of endotracheal intubation
  - c. Needle/Surgical Cricothyrotomy
  - d. Tube thoracostomy
  - e. Thoracic drainage system
  - f. End-tidal CO<sub>2</sub> monitoring
  - g. Bag-Valve-Mask Technique
  - h. Mechanical Transport ventilators with flow-control and PEEP attachments
  - i. Facilitated Intubations

## **PSYCHOMOTOR OBJECTIVES**

At the completion of this unit of instruction, the participant shall be able to:

1. Perform orotracheal intubation, digital, and nasotracheal intubation procedure on a manikin with assessment of placement, confirmation using all board approved devices and trouble shooting techniques.
2. Demonstrate Needle and surgical cricothyrotomy procedure on a manikin.
3. Perform procedure for facilitated intubation using sedation and neuromuscular blockade with case scenarios.
4. Demonstrate the set up, maintenance and troubleshooting of a thoracic drainage system.
5. Demonstrate the set up, maintenance and troubleshooting of a mechanical ventilator.
6. Asses breath and lung sounds using a breath sound generator or other type of simulation device.
7. Perform tube thoracostomy procedure on a manikin with assessment of placement and confirmation and trouble shooting techniques.

## **AFFECTIVE OBJECTIVES**

At the completion of this unit of instruction, the participant shall be able to:

1. Relates the need and management for controlled ventilations, oxygenation, and airway control in the critically ill patient.

## **INSTRUCTOR QUALIFICATIONS**

Shall be an experienced critical care professional and an experienced Registered Respiratory Therapist (CRRT/RRT). Instructors should be capable and able to encourage interactive learning and facilitate discussions on the topic.

## **MINIMAL EQUIPMENT NEEDS AND INSTRUCTOR RESOURCES**

### **Visual aids and resources**

1. Airway manikins
2. Airway adjunct equipment
3. Endotracheal tube placement confirmation devices

## **TENNESSEE CRITICAL CARE PARAMEDIC STANDARDIZED MODULES AND OBJECTIVES**

4. Physiological simulator
5. Manual ventilating devices
6. Mechanical ventilators
7. Chest decompression devices
8. Chest tube drainage systems
9. Radiographic examples.
10. Case study scenarios promoting participants to make Clinical decisions.

## **MINIMUM TIME FOR MODULE**

20 hours



# MODULE: **CARDIOVASCULAR**

## **TERMINAL OBJECTIVES:**

At the completion of this unit of instruction, the participant shall be able to:

1. Integrate concepts of cardiovascular anatomy and physiology and pathophysiology into the assessment and management of the adult critical care patient.
2. Formulate a treatment plan to include pharmacological, electrical and mechanical interventions for the patient with a cardiovascular compromise.

## **COGNITIVE OBJECTIVES:**

At the completion of this unit the participant shall be able to:

1. Describe the anatomy and physiology of the cardiovascular system.
2. Describe the initial approach to managing the manifestations of chest pain as related to cardiovascular disease.
3. Describe the physiology of cardiovascular disease.
4. Utilizing multi-lead ECGs, differentiate between normal and abnormal multi-lead ECGs.
5. Discuss indications, contraindications, equipment, techniques and maintenance of various methods of hemodynamic monitoring to include the most commonly acceptable methods.
6. Utilize assessment data obtained from hemodynamic monitoring in the formulation of a clinical impression and management plan for the cardiovascular compromised patient.
7. Describe and discuss laboratory values as they relate to the cardiovascular system.
8. Discuss common pharmacological agents used in managing arrhythmias.
9. Discuss common pharmacological agents which may be utilized to optimize cardiac output and blood pressure.
10. Describe all aspects of equipment used for patients with cardiovascular compromised disease including but not limited to ventricular assist devices, intra-aortic balloon pumps, and venous pacemaker.
11. Discuss differential diagnosis and management priorities of cardiovascular emergencies.

## **PSYCHOMOTOR OBJECTIVES:**

At the completion of this unit the participant shall be able to:

1. Perform a 12 lead monitoring placement and interpretation
2. Access, manage and assess complications associated with Central Lines
3. Manage and assess for complications associated with Balloon Pump management
4. Utilize EMS Board approved point of care testing devices
5. Assessment and recognition of heart and lung sounds

## **AFFECTIVE OBJECTIVE:**

At the completion of this unit the participant shall be able to:

1. Appreciate the use of hemodynamic monitoring and multi-lead ECGs in the assessment and management of the patient with cardiovascular compromise.

## **INSTRUCTOR QUALIFICATIONS:**

Experienced critical care professional and/or healthcare professional well versed in the issues, resources, and skills covered in this topic area. An experienced and capable instructor that is able to encourage interactive learning and facilitate discussion.

## **MINIMAL EQUIPMENT NEEDS AND INSTRUCTOR RESOURCES**

### **Visual aids and resources**

1. Adult central-line manikin
2. Multi-lead ECG equipment
3. Sample multi-lead insertion equipment
4. Central and arterial line insertion equipment
5. Hemodynamic monitoring equipment
6. Radiographic studies depicting placement of cardiovascular support equipment.
7. Intra-aortic balloon pump systems
8. Hand-pump for ventricular assist device
9. Case study scenarios promoting participants to make Clinical decisions.

## **MINIMUM TIME FOR MODULE**

30 hours

# MODULE: NEUROLOGICAL

## TERMINAL OBJECTIVES:

At the completion of this unit of instruction, the participant shall be able to:

1. Integrate concepts of neurological anatomy and physiology and pathophysiology into the assessment and management of the adult critical care patient.
2. Formulate an impression of the clinical status of the critically ill patient with a neurological disorder.
3. Provide, or assist in the provision of, appropriate medical interventions for the critically ill patient with a neurological disorder.
4. Defend (justify) a treatment plan for the critically ill patient with a neurological disorder within the scope of practice of the critical care paramedic.
5. Communicate pertinent patient information to healthcare personnel involved in the patient's care.

## COGNITIVE OBJECTIVES:

At the completion of this unit of instruction, the participant shall be able to:

1. Discuss the anatomy and physiology of the organs and structures related to the Nervous System.
2. Discuss the differences in the neurological assessment between a brain injured or spinal cord injured patient
3. Discuss the management of non traumatic neurological emergencies
4. Describe the major components of a neurological examination
5. Describe the findings of a normal and abnormal neurological examination
6. Identify transportation considerations for the patients with neurological injuries
7. Describe the pathophysiology of ICP
8. Define compliance, herniation, CPP as related to the brain
9. Identify signs and symptoms of increasing ICP
10. Identify strategies and methods for decreasing ICP during critical care transport
11. Describe the advantages, disadvantages, and transport considerations for the following ICP monitoring devices: Intraventricular catheter; Epidural catheter; Subdural/subarachnoid monitoring devices; fiber optic transducer tipped probe; to include other devices developed for transport considerations.
12. Describe ICP waveform

## PSYCHOMOTOR OBJECTIVES:

After completion of this unit the cc student will be able to:

1. Perform an appropriate assessment of a patient with coma or altered mental status
2. Perform a complete neuro exam as part of the comprehensive physical exam of a patient with coma or altered mental status
3. Document the findings of a neuro exam
4. Describe the calculation of CPP
5. Identify various waveforms on monitor in simulation

## **AFFECTIVE OBJECTIVES:**

1. After completion of this unit the cc student will be able to:
2. Characterize the feelings of a patient who regains consciousness among strangers
3. Formulate means of conveying empathy to patients whose ability to communicate is limited by their condition

## **INSTRUCTION QUALIFICATIONS**

Experienced critical care professional and/or healthcare professional well versed in the issues, resources, and skills covered in this topic area. An experienced and capable instructor that is able to encourage interactive learning and facilitate discussion.

## **MINIMAL EQUIPMENT NEEDS AND INSTRUCTOR RESOURCES**

### **Visual aids and resources**

1. Intra-cranial monitoring devices
2. Case study scenarios promoting participants to make clinical decisions

## **MINIMUM TIME FOR MODULE**

8 hours

# **MODULE: GASTROINTESTINAL, GENITORURIAL AND RENAL**

## **TERMINAL OBJECTIVE:**

At the completion of this unit of instruction, the participant shall be able to:

1. Integrate the pathophysiology principles and assessment findings to implement a treatment plan for the critical renal or gastrointestinal patient.

## **COGNITIVE OBJECTIVES:**

At the completion of this unit, the participant shall be able to:

1. Discuss the anatomy, physiology and pathophysiology of gastrointestinal, genitourinal, and renal systems.
2. Discuss the characteristics and manifestations of blood in the gastrointestinal tract.
- ~~3.~~ Differentiate the signs and symptoms of acute and chronic GI, GU and renal diseases.
- ~~4.~~ Discuss the commonly accepted methods of managing GI, GU, and renal disease.
5. Recognize complications of chronic GI, GU and renal diseases.
6. Discuss the pharmacological management of the GI, GU and renal patient.
7. Discuss different renal dialysis techniques; along with complications and management techniques associated with each method.
8. Discuss lab values related to GI, GU and renal pathophysiology.
9. Discuss the discontinuation of dialysis in the event of acute complications.
10. Discuss differential diagnosis and management priorities of GI, GU, and renal disease.

## **PSYCHOMOTOR SKILL**

At the completion of this unit, the participant shall be able to:

1. Recognition and management of gastrointestinal devices i.e. PEG tube
2. Access and manage AV shunts and temporary renal shunts
3. Manage TPN lines
4. Insertion and management of foley catheters
5. Insertion and management of Nasogastric tubes

## **AFFECTIVE OBJECTIVE:**

At the completion of this unit, the participant shall be able to:

1. Appreciate the assessment and clinical finding of a GI, GU and renal patient in the critical care setting.

## **INSTRUCTION QUALIFICATIONS**

Experienced critical care professional and/or healthcare professional or renal dialysis nurse and /or technician well versed in the issues, resources, and skills covered in this topic area. An experienced and capable instructor that is able to encourage interactive learning and facilitate discussion.

## **MINIMAL EQUIPMENT NEEDS AND INSTRUCTOR RESOURCES**

### **Visual aids and resources**

1. Renal dialysis equipment
2. Adult manikins for insertion of Nasogastric tubes
3. Adult manikins for insertion of foley catheters.
4. assorted gastrointestinal devices
5. TPN equipment
6. Case study scenarios promoting participants to make clinical decisions

## **MINIMUM TIME FOR MODULE**

8 hours

# MODULE: MULTIPLE ORGAN DYSFUNCTION SYNDROME

## TERMINAL OBJECTIVES:

At the completion of this unit of instruction, the participant shall be able to:

1. Integrate the Pathophysiological principles and assessment findings to implement a treatment plan for the multiple organ dysfunction and shock patient.

## COGNITIVE OBJECTIVES

At the completion of this unit of instruction, the participant shall be able to:

1. Discuss the anatomy, physiology, and pathophysiology of the body's organ systems.
2. Define shock.
3. Differentiate the major types of shock (including hypovolemic, cardiogenic, neurogenic, anaphylactic, and septic), according to causes and pathophysiologic alterations.
4. Identify patients at risk to develop each of the major types of shock.
5. Describe the body's responses to shock, including early and late.
6. Summarize the clinical findings of shock.
7. List the abnormal laboratory findings in shock.
8. Describe the hemodynamic findings in hypovolemic, cardiogenic, neurogenic, anaphylactic, and septic shock.
9. List common complications of shock.
10. Differentiate definitive and supportive measures for the patient with shock.
11. List definitive measures for hypovolemic, cardiogenic, anaphylactic, and septic shock.
12. Explain the reason for fluid administration in shock.
13. State the cardiovascular effects of stimulation of alpha, beta 1, beta 2, and dopaminergic receptors.
14. Summarize the actions, indications, dosages, and adverse effects of dopamine, dobutamine, milrione, epinephrine, norepinephrine, phenylephrine, and vasopressin in treating shock.

## PSYCHOMOTOR OBJECTIVES

There are no psychomotor objectives in this unit.

## AFFECTIVE OBJECTIVES

At the completion of this unit of instruction, the participant shall be able to:

3. Value the strategies for assessing and treating patients with MODS and shock.
4. Value the use of effective strategies for interacting with the patient and family members when dealing with end of life issues.

## **INSTRUCTOR QUALIFICATIONS**

Experienced critical care professional well versed in the issues, resources, and skills covered in this topic area. Instructors should be capable and able to encourage interactive learning and facilitate discussions on the topic.

## **MINIMAL EQUIPMENT NEEDS AND INSTRUCTOR RESOURCES**

### **Visual aids and resources**

1. Case study scenarios reflecting the assessment and prompting participants to make clinical decisions of patients in shock.

## **MINIMUM TIME FOR MODULE**

3 hours



# MODULE: SPECIAL CONSIDERATIONS

## TERMINAL OBJECTIVE:

At the completion of this unit of instruction, the participant shall be able to:

1. Integrate the pathophysiology principles and assessment findings to implement a treatment plan for the pediatric patient determined to be in overt shock or respiratory failure
2. Integrate the pathophysiology principles and assessment findings to implement a treatment plan for the burn patient

## A. Pediatric Care:

### Cognitive Objectives

At the completion of this unit, the participant shall be able to:

1. Discuss the anatomy and physiology of the pediatric patient as related to age specific assessments.
2. Discuss and identify the normal hemodynamic parameters of the pediatric patient for each age specific category.
3. Identify and manage overt shock and respiratory failure when stabilizing critical pediatric patients.
4. Discuss commonly accepted treatment modalities for the various age groups of pediatrics.
5. Discuss the Pharmacological management of pediatric emergencies and proper dosing protocols based on Pediatric Advanced Life Support Guidelines.
6. Discuss the importance of family dynamics in the care of each pediatric age group.
7. Identify and discuss signs and symptoms of pediatric abuse.

### Psychomotor Skill:

At the completion of this unit, the participant shall be able to:

1. Recognition and management of Pediatric Evaluation and Management tools (Broslow, etc.).
2. Access and manage intravenous and intra osseous access devices designed for Pediatric patients.
3. Pediatric Airway management.
4. Pediatric pain control and Pharmacology administration.

### Affective Skill:

At the completion of this unit, the participant shall be able to:

1. Appreciate, understand and use assessment skills and treatment modalities consistent with nationally recognized Pediatric criteria based on the age group of each patient.

# MINIMAL EQUIPMENT NEEDS AND INSTRUCTOR RESOURCES

## Visual aids and resources

1. Pediatric intubation equipment
2. Length based tapes
3. Pediatric mannikins
4. Radiographic examples of Pediatric Respiratory Failure
5. Intraosseous equipment
6. Case study scenarios promoting participants to make clinical decisions

## B. Burn Management

### Cognitive Objectives:

At the completion of this unit, the participant shall be able to:

1. Discuss burn assessment criteria and how to score the burn in terms of total body percentage.
2. Discuss hemodynamic assessment criteria associated with burn related injuries and their effect on body system functions to include potential complications.
3. Describe the criteria to determine the degree of burns.
4. Discuss the management of burn injuries to include wound, airway, and pain management.
5. Describe burn wound treatment protocols and products based on the latest criteria established for burn management.
6. Discuss the various types of burn related injuries sorted by mechanism of injury (Chemical, Heat/ Fire, Radiation) and the associated treatment triage first response as applicable.

### Psychomotor Objectives:

At the completion of this unit, the participant shall be able to:

1. Perform an accurate assessment of a burn patient to include rating of the burns as well as body surface area measurements and potential hemodynamic complications.
2. Perform adequate airway and intravenous management techniques to include intraosseous access for treatment of the burn patient.
3. Document assessment and treatment modalities of burn related injuries.

### Affective Objectives:

At the completion of this unit, the participant shall be able to:

1. Appreciate and understand the physical and hemodynamic injuries and complications associated with burn related injuries and the accepted treatment modalities based on a thorough assessment of the patient throughout the episode of care.

## **MINIMAL EQUIPMENT NEEDS AND INSTRUCTOR RESOURCES**

### **Visual aids and resources**

1. Radiographic examples demonstrating hemodynamic failure secondary to burns.
2. Photographs of burn injuries
3. Intraosseous cannulation devices for adults

## **C. Other:**

### **Cognitive Objectives:**

At the completion of this unit, the participant shall be able to:

1. Discuss the various types of surgical drains and the mechanism of functionality.
2. Discuss the idea of Point of Service Testing devices and their validity for treatment.
3. Discuss the use of rapid infusion devices in the care of EMS patients.
4. Discuss blood and blood product administration to include volume expanders.

### **Psychomotor Objectives:**

At the completion of this unit, the participant shall be able to:

1. Identify the various types of surgical drains and how to empty, measure and support during transport.
2. Identify Point of Service Testing devices and document test results with corresponding treatment modalities.
3. Identify and demonstrate utilization of rapid infusion device.
4. Identify the various types of blood and blood products and demonstrate proficiency in understanding the hemodynamic of each to include infusion rates, signs and symptoms of adverse reactions, and documentation requirements for each.

### **Affective Objectives:**

At the completion of this unit, the participant shall be able to:

1. Appreciate the importance of maintenance of the surgical drain of the patient during transport.
2. Appreciate the validity of Point of Service Testing devices and the mechanism of treatment parameters to which pre-hospital care could be expanded to improve patient outcomes.
3. Appreciate the importance and validity of the Rapid Infusion Device in the care of traumatic or hemodynamically compromised patients.
4. Appreciate the importance and potential complications of blood and blood product administration.

## MINIMAL EQUIPMENT NEEDS AND INSTRUCTOR RESOURCES

### Visual aids and resources

1. Rapid infusion device
2. Various types of surgical drains
3. Point of Service Testing Devices
4. Blood and blood product administration devices
5. Case studies with scenarios promoting participants to make sound clinical decisions using POS Testing devices, involving surgical wounds with drains, rapid infusion devices, and the utilization of blood and blood products.

### Instructor Qualifications:

- A. Pediatrics –**  
Experienced Pediatric Physician or Nurse or with the ability to encourage interactive learning and facilitate discussions on the care of Pediatric patients in all age groups.
- B. Burns –**  
Experienced Critical Care Professional or Registered Nurse with experience in direct care of burn patients who can encourage interactive learning and facilitate discussions on the care of this patient population.
- C. Other –**  
Experienced Registered Nurse or other healthcare professional with direct experience in dealing with the defined devices and products who can encourage interactive learning and facilitate discussions on the care of patients with these devices or receiving defined products.

### Time Suggested:

12 hours

# MODULE: CRITICAL TRANSPORTS

## TERMINAL OBJECTIVES:

At the completion of this unit of instruction, the participant shall be able to:

1. Integrate the principles and assessment findings to implement a transport plan for the critical ill patient

## COGNITIVE OBJECTIVES

At the completion of this unit of instruction, the participant shall be able to:

1. Describe the history of ambulance transports
2. Name three examples of Critical Care Team composition
3. Identify the preferred qualifications of Critical Care Transport Team
4. Differentiate between routine and specialty equipment found on a Critical Care Transport unit.
5. Identify indications for critical care transport.
6. Discuss three modes of transport for the critically ill or injured.
7. Identify critical decision points in a transport event
8. Identify essential patient perceptions of quality service
9. Recognize situations warranting diversion or interception in a critical situation
10. Define Boyles Law
11. Name the eight stressors of flight
12. Explain the effect of an unpressurized cabin has on equipment
13. List the objective signs and symptoms of hypoxia
14. Name six special considerations that should be taken with patients being air transported.
15. Explain how negative G- force affects the body
16. Define Daltons Law
17. Name three considerations in preventing hearing loss
18. List four factors contributing to crew member fatigue

## PSYCHOMOTOR OBJECTIVES

**There are no psychomotor objectives in this unit.**

## AFFECTIVE OBJECTIVES

At the completion of this unit of instruction, the participant shall be able to:

1. Value the importance of critical care team approach to the patient.

## **INSTRUCTOR QUALIFICATIONS**

Experienced critical care professional and/or healthcare professional or renal dialysis nurse and /or technician well versed in the issues, resources, and skills covered in this topic area. An experienced and capable instructor that is able to encourage interactive learning and facilitate discussion.

## **MINIMAL EQUIPMENT NEEDS AND INSTRUCTOR RESOURCES**

### **Visual aids and resources**

Multiple scenarios reflecting principles and assessment findings needed to implement a transport plan for the critical ill patient

## **MINIMUM TIME FOR MODULE**

3 hours

# MODULE: CLINICAL

## TERMINAL OBJECTIVE:

At the completion of this unit of instruction, the participant shall be able to:

1. Integrate a comprehensive assessment of a variety of critically ill or injured adult patients.

## CLINICAL EXPECTATIONS AND OUTCOMES

The student must demonstrate the ability to perform a comprehensive assessment on a variety of critically ill or injured adult patients. The following is a list of minimal expectations for candidate psychomotor domain experiences.

- Assists with chest tube management
- Assists in the management of patients with surgical airways
- Assists with automatic ventilator setting and maintenance
- Management of central venous access devices
- Assists with wound drainage systems
- Assists with the management of an arterial line system
- Assists with patients that are hemodynamically monitored
- Management of patients with internal cardiac pacing
- Management of multiple pharmacological systems

## CLINICAL REQUIREMENTS

Clinical components should begin after a minimum of 80 classroom hours. All practical and laboratory assessments must be completed to ensure clinical awareness and appropriate utilization of clinical experiences. Clinical rotations must be no less than a total of 24 hours with rotations that do not exceed 12 hours.

Clinical experiences for candidates shall be completed in a setting that has multiple opportunities for critical care patient interaction. Appropriate clinical site shall have and provide the following: Arterial line placement, hemodynamic monitoring, ventilators, central venous access placement, central venous access monitoring, patients with indwelling vascular access devices, chest tube placement, chest tube management with pleur-vac or similar system, CPAP/BiPAP initiation, CPAP/BiPAP monitoring, intravenous cardiac pacing, and surgical airway capability.

## CLINICAL INSTRUCTOR QUALIFICATIONS

Clinical preceptors shall be one of the following:

- Physician
- Registered Nurse
- Respiratory Therapist

All preceptors shall have a minimum of two years critical care experience and a willingness to serve as a mentor in the clinical setting. All preceptors will complete an orientation provided by the educational program conducting the course to ensure adequate preceptor preparation. All preceptors will complete the appropriate documentation to accurately reflect the candidate's clinical experiences.

## **EXAMPLE OF CLINICAL OUTCOME STATEMENT**

*\* indicates optional clinical activity*

Candidates will demonstrate the ability to management and/or assist:

1. Commonly used vascular access devices for both central and peripheral.
2. Recognize complications and initiate appropriate interventional measures for central and peripheral vascular access.
3. Setup equipment for Hemodynamic Monitoring.
4. Direct measurement of arterial pressure
5. Zero calibrate the arterial line.
6. Troubleshoot problems
7. Access and secure for transport
8. Calculate mean arterial pressure
9. Demonstrate the steps necessary to prepare a patient for transport with an intraaortic balloon pump.
10. Demonstrate the monitoring process to be performed during an intraaortic balloon pump transport.
11. Demonstrate interventions to complications that may be taken on the intraaortic balloon pump patient.
12. Demonstrate tracheostomy assessment and management.\*
13. Demonstrate needle cricothyrotomy assessment and placement.\*
14. Demonstrate surgical cricothyrotomy assessment and placement.\*
15. Demonstrate chest tube assessment and placement.
16. Demonstrate assessment and calculations of pediatric and adult tidal volumes and pressures.



17. Perform appropriate operation of mechanical ventilation equipment in the following modes:
  - a. Controlled mandatory ventilation (CMV)
  - b. Assist control (A/C)
  - c. Intermittent mandatory ventilation (IMV)
  - d. Synchronized intermittent mandatory ventilation (SIMV)
  - e. Pressure support ventilation
  - f. Continuous positive airway pressure (CPAP)
  - g. Positive end expiratory pressure (PEEP)
18. Demonstrate NG and OG tube assessments and insertions.
19. Demonstrate urinary catheter assessment and management.
20. Demonstrate ileostomy assessment and management.\*
21. Demonstrate colostomy assessment and management.\*
22. Demonstrate the calculation of cerebral perfusion pressure.
23. Perform intracranial pressure monitoring utilizing interventricular cannula, epidural catheter, subdural/subarachnoid screw, bolt and fiber optic transducer tipped probe monitoring devices.\*
24. Demonstrate ability to troubleshoot complications of invasive intracranial pressure monitoring devices.\*
25. Demonstrate intracranial pressure monitoring utilizing cerebral spinal fluid pressure monitoring techniques.\*
26. Demonstrate ability to perform and interpret cerebral spinal fluid pressure monitoring.\*
27. Demonstrate ability to perform and interpret intraparenchymal monitoring.\*
28. Demonstrate common troubleshooting techniques for complications of cerebral spinal fluid, intraparenchymal and subarachnoid pressure monitoring.\*
29. Demonstrate methods for administering blood products including the use of filters, intravenous fluids and premedicating the patient.
30. Demonstrate the correct placement of 12 lead electrodes.
31. Demonstrate lead placement for posterior wall of left ventricle - V<sub>9</sub>, V<sub>10</sub>.
32. Demonstrate lead placement for right ventricular wall of right ventricle -V<sub>4R</sub>.
33. Demonstrate the correct placement of modified chest leads - MCL<sub>1</sub> through MCL<sub>6</sub>.
34. Demonstrate accurate interpretation of a pediatric EKG.

35. Diagnostic imaging assessment:

Demonstrate identification of a pneumothorax in a chest x-ray.

Demonstrate identification of chest consolidation in a chest x-ray.

Demonstrate identification of fractures in a chest x-ray.

Demonstrate identification of endotracheal tube placement on x-ray.

Demonstrate identification of NG and OG tube placement on x-ray.

Demonstrate identification of central IV catheters placement on x-ray.

Demonstrate identification of urinary catheter placement on x-ray.