

## RN to Paramedic Policy and Procedures

**PURPOSE:** To establish requirements necessary for applicants that currently hold a valid license as a Registered Nurse to be authorized and credentialed to practice as a West Virginia Paramedic.

**POLICY:** To ensure consistent standards and procedures for Registered Nurses certifying as a Paramedic in West Virginia.

### PROCEDURE/REQUIREMENTS:

- A. Apply for certification by completing an online application at [www.wvoems.org](http://www.wvoems.org).
- B. Submit the appropriate fees as required in WV §64 CSR 48-6.9.
- C. Be 18 years of age or greater.
- D. Disclose any limitation or exclusion by any EMS Agency, EMS Medical Director, or any other healthcare professions certification or licensing authority in any state, territory or the U.S. Military Services.
- E. Apply for and be cleared by the State and National background checks for WVOEMS as required in WV §16- 4C-8.1.1: (RN Board Background Check may substitute for this requirement).
- F. Create a valid CIS account.
- G. Possess a current, unrestricted RN License in West Virginia.
- H. Possess current or documented former certification as an Emergency Medical Technician (EMT) or equivalent in West Virginia or any other US state or territory, or;
  - 1. Must successfully complete an approved EMT refresher course, and;
  - 2. **Evaluation** - Complete an Education Determinate Evaluation approved by WVOEMS. A passing score of 70% shall be required for recertification. Applicants shall have three (3) attempts to obtain a passing score of 70% at which point, they will be required to repeat the 28 hour refresher course prior to retesting one (1) time. After this fourth attempt the candidate will be required to repeat the EMT program.

## **RN to Paramedic Policy and Procedures**

- I. Successfully complete Hazmat Awareness training meeting OSHA 1910.120 or higher standards annually.
- J. Successfully complete a WVOEMS approved MCI Awareness and Operations. (6 hours)
- K. Successfully complete an approved CPR refresher course meeting WV §64 CSR 48-6.8.a.4. Applicant must show proof of current valid CPR certification.
- L. Successfully complete a WVOEMS ALS Protocol In-service. (4 hours)
- M. Complete a Paramedic bridge program as outline below:
  - 1. Complete 20 hours of Airway Management Skills based on the National paramedic curriculum outlined in Appendix I. This will ensure understanding of the following topics:
    - a. Orotracheal Intubation
    - b. Nasotracheal Intubation
    - c. Complicated Airways
    - d. EtCO<sub>2</sub>
    - e. Chest Decompression
    - f. Cricothyrotomy
  - 2. Complete 12 hours of scenario based lab that ensures the candidate has competencies in the following:
    - a. ALS Patient Assessment
    - b. All skills listed in M. 1. A-F.
    - c. Candidate is requires to perform ten (10) successful intubations utilizing high fidelity simulation.
  - 3. Complete 12 hours of WVOEMS approved 12 Lead ECG Training.
  - 4. Complete all skills outlined in the RN to Paramedic skill sheet and document on the appropriate form.

## **RN to Paramedic Policy and Procedures**

- N.** Complete and submit the **RN to Paramedic Initial Certification Education Record** and **RN to Paramedic Skills Sheet**.
- O.** RN's will be required to maintain a current, unrestricted RN License in West Virginia to remain certified as a WV Paramedic. Recertification may be obtained by following the Paramedic Recertification Policy in its entirety.
- P.** Meet other requirements established by the Commissioner.

This policy replaces all previous policies for RN to Paramedic initial certification.

APPLICABLE CODE/RULE: WV Code §16-4C-6 and §16-4C-8 and §64 CS 48-6.

**RN to Paramedic Initial Certification Education Record**

NAME:		
Certification Number: <b>WV</b>		
Agency Affiliation:		<input type="checkbox"/> Not Affiliated
<b>Certification Requirements</b>		<b>DATE</b>
WV Registered Nursing Licensing <i>(Must include a copy with this form)</i>		
WVOEMS EMT Certification <i>(Attach Card)</i>		
<b>State and Federal Requirements</b>		<b>HOURS</b>
WVOEMS MCI Awareness and Operations		<b>6</b>
Paramedic Protocol In-Service		<b>4</b>
<b>CPR Requirement</b>		<b>DATE</b>
Approved CPR Refresher meeting WV §64 CSR 48-6.8.a.4.		
<b>Haz Mat Requirement</b>		<b>DATE</b>
Haz Mat Awareness meeting OSHA 1910.120 or higher standards		
<b>RN to Paramedic Bridge</b>		<b>HOURS</b>
Airway Management Skills Module		<b>20</b>
Scenario Based Lab		<b>12</b>
12 Lead ECG Training		<b>12</b>
<p><i>By signing below I hereby warrant that the above named RN has completed the requirements outlined above and on the dates specified. Verification of course completion may be by Educational Institute or TSN Representative signature, submission of certificate of completion, submission of certification card, copy of your education history from an approved WVOEMS database, college transcript, or other approved method.</i></p>		
Applicant:		
_____		
<i>Signature</i>		
Applicant:		Date:
_____		
<i>Printed Name</i>		
Educational Institute or TSN Representative:		
_____		
<i>Signature</i>		
Educational Institute or TSN Representative:		Date:
_____		
<i>Printed Name</i>		

**RN to Paramedic Certification-Skills Evaluation**

This document shall be completed as part of the requirements for RN to Paramedic certification. Skills may be based on direct observation, successful field completion, or skills stations evaluations from an approved WVOEMS Education Institute or TSN or Agency Medical Director.

NAME:	
Certification Number: <b>WV</b>	Expiration Date:
Agency Affiliation:	<input type="checkbox"/> Not Affiliated
SKILL	DATE
Airway Management / Intubation	
Chest Decompression	
Cardiac Arrest Management	
EKG Interpretation	
Intraosseous Infusion (Adult and Pediatric)	
Intravenous Therapy	
Needle Cricothyrotomy / <i>optional</i> Percutaneous Cricothyrotomy	
Patient Assessment (Medical and Trauma)	
Medication Administration	
<i>Both signatures below are required with the exception of those not affiliated with an EMS agency. By signing below we hereby warrant the above named ALS provider was evaluated on the skills outlined and on the dates specified.</i>	
Agency Medical Director: (Not required if you are unaffiliated) _____ <p style="text-align: center;"><i>Signature</i></p>	
Agency Medical Director: (Not required if you are unaffiliated) _____ <p style="text-align: center;"><i>Printed Name</i></p>	Date:
Educational Institute or TSN Representative: _____ <p style="text-align: center;"><i>Signature</i></p>	
Educational Institute or TSN Representative: _____ <p style="text-align: center;"><i>Printed Name</i></p>	Date:

## RN to Paramedic Bridge Requirements - 20 Hours

### Airway Management, Respiration, and Artificial Ventilation

### Airway Management

#### Paramedic Education Standard

Integrates complex knowledge of anatomy, physiology, and pathophysiology into the assessment to develop and implement a treatment plan with the goal of assuring a patent airway, adequate mechanical ventilation, and respiration for patients of all ages.

#### Paramedic-Level Instructional Guideline

The Paramedic Instructional Guidelines in this section include all the topics and material at the AEMT level PLUS the following material:

- I. Airway Anatomy
  - A. Sinuses
    1. Frontal
    2. Sphenoid
    3. Ethmoid
    4. Maxillary
  - B. Upper Airway Tract
    1. Nose
    2. Mouth and Oral Cavity
    3. Jaw
    4. Pharynx
      - a. Nasopharynx
      - b. Oropharynx
      - c. Hypopharynx
      - d. Laryngopharynx
        - i. Vallecula
          - a) Piriform Sinus
  5. Larynx
    - a. Cartilages
      - i. epiglottis
      - ii. arytenoid cartilage
        - a) corniculate cartilage
        - b) cuneiform cartilage
        - c) posterior arytenoids
      - iii. vocal cords
        - a) false vocal cord
        - b) true vocal cord
      - iv. thyroid cartilage

- v. cricoid ring
      - a) arch of cricoid cartilage
      - b) lamina of cricoid cartilage
      - c) cricothyroid membrane (ligament)
    - b. Bone
      - i. Hyoid bone
        - a) Hyo-epiglottic ligament
  - C. Jugular notch
  - D. Lower Airway Tract
    - 1. Trachea -- Spatial relationship to esophagus
    - 2. Carina -- Angle of Louis
    - 3. Bronchi
    - 4. Lungs
      - a. Bronchioles
        - i. bronchial smooth muscle
        - ii. beta-two adrenergic receptors
      - b. Pulmonary cilia
      - c. Alveoli -- Surfactant
  - E. Support Structures
    - 1. Chest Cage
      - a. Ribs
      - b. Muscles of respiration
        - i. intercostal muscles
        - ii. diaphragm
      - c. Pleura
        - i. parietal pleura
        - ii. visceral pleura
    - 2. Phrenic nerve
    - 3. Mediastinum

## II. Airway Assessment

- A. Purpose
  - 1. Identify inadequate airway
  - 2. Identify an unstable airway
  - 3. Identify potentially difficult airways
- B. Procedure
  - 1. Gag Reflex
  - 2. Airway obstruction
    - a. Soft tissue obstruction
    - b. Foreign bodies
    - c. Complete and incomplete
    - d. Upper vs. Lower
  - 3. Work of breathing
  - 4. Laryngospasm
  - 5. Laryngeal edema
  - 6. Penetrating injuries

- C. Anticipating the difficult airway
  - 1. Trauma/bleeding
  - 2. Vomiting
  - 3. History
  - 4. Mouth opening
  - 5. Mandibular length
  - 6. Mallampati classifications
  - 7. Obstructions
  - 8. Neck mobility
  - 9. Facial hair

III. Techniques of assuring a patent airway

- A. Manual airway maneuvers
- B. Mechanical airway devices
- C. Relief of Foreign Body Airway Obstruction
  - 1. Refer to current American Heart Association guidelines
  - 2. Removal of foreign body airway obstructions using direct laryngoscopy
    - a. Purpose
    - b. Indications
    - c. Contraindications
    - d. Complications
    - e. Procedure
    - f. Limitation
  - 3. Airway suctioning
    - a. Review and elaborate on the upper airway suctioning material from the EMR, EMT and AEMT levels
    - b. Tracheobronchial Suctioning
      - i. purpose
      - ii. indications
      - iii. contraindications
      - iv. complications
      - v. procedure
      - vi. limitation
- D. Blind insertion airway devices
- E. Endotracheal intubation
  - 1. Direct laryngoscopy (visualized)
    - a. Purpose
    - b. Indications
    - c. Contraindications
    - d. Complications
    - e. Procedure (including confirmation techniques)
    - f. Limitations
  - 2. Non-visualized
    - a. Nasal
      - i. purpose
      - ii. indications



- iii. contraindications
  - iv. complications
  - v. procedure (including confirmation techniques)
  - vi. limitations
  - b. Digital
    - i. purpose
    - ii. indications
    - iii. contraindications
    - iv. complications
    - v. procedure (including confirmation techniques)
    - vi. limitations
  - c. Lighted stylet
    - i. purpose
    - ii. indications
    - iii. contraindications
    - iv. complications
    - v. procedure (including confirmation techniques)
    - vi. limitations
  - d. Fiber optic (Shikaini Seeing Optical Stylet (SOS), Glide scope)
    - i. purpose
    - ii. indications
    - iii. contraindications
    - iv. complications
    - v. procedure (including confirmation techniques)
    - vi. limitations
- F. Percutaneous cricothyrotomy
- 1. Purpose
  - 2. Indications
  - 3. Contraindications
  - 4. Complications
  - 5. Procedure (including confirmation techniques)
  - 6. Limitations

IV. Consider age-related variations in pediatric and geriatric patients

- A. See Special Patient Populations section

# Airway Management, Respiration, and Artificial Ventilation

## Respiration

### Paramedic Education Standard

Integrates complex knowledge of anatomy, physiology, and pathophysiology into the assessment to develop and implement a treatment plan with the goal of assuring a patent airway, adequate mechanical ventilation, and respiration for patients of all ages.

### Paramedic-Level Instructional Guideline

The Paramedic Instructional Guidelines in this section include all the topics and material at the AEMT level PLUS the following material:

- I. Anatomy of the Respiratory System
  - A. Includes all airway anatomy covered in the Airway Management section
  - B. Additional Respiratory System Anatomy
    1. Chest Cage
      - a. Ribs
      - b. Muscles of respiration
        - i. intercostal muscles
        - ii. diaphragm
      - c. Pleura
        - i. parietal pleura
        - ii. visceral pleura
    2. Phrenic nerve
    3. Mediastinum
- II. Physiology of Respiration
  - A. Control of Respiration
    1. Nervous Control of Respiration
      - a. Medulla oblongata
        - i. ventral respiratory group
        - ii. dorsal respiratory group
        - iii. reticular activating system
      - b. Innervation of the Respiratory Musculature
        - i. spinal cord innervation
        - ii. phrenic nerve
        - iii. Hering Breuer reflex
    2. Conscious Control of Respiration
      - a. Somatic nerves related to intercostal innervation
    3. Chemical Control of Respiration
      - a. Chemoreceptors

- B. Mechanics of Respiration
  - 1. Pulmonary Ventilation
    - a. Movement of the Thoracic Wall
      - i. vertical diameter
      - ii. transverse diameter
      - iii. anteroposterior diameter
    - b. Intrathoracic pressure gradients
      - i. Boyle's Law
      - ii. inspiration
      - iii. expiration
    - c. Phases of Ventilation
      - i. active phase
      - ii. passive phase
    - d. Modes of Breathing
      - i. quiet breathing
      - ii. forced breathing
    - e. Lung Volumes and Capacities
      - i. volumes
        - a) tidal volume
        - b) minute volume
        - c) residual volume
        - d) dead space volume
      - ii. capacities
        - a) total lung capacity
        - b) vital capacity
      - iii. maximum inspiratory force
      - iv. maximum expiratory force
      - v. significance of pulmonary volumes and capacities
  - 2. Gas Exchange
    - a. Mixed gases in ambient air
    - b. Partial pressures
      - i. Henry's Law
      - ii. PaO<sub>2</sub>
      - iii. PCO<sub>2</sub>
    - c. Oxygenation
    - d. Alveolar air versus atmospheric air
    - e. Respiration
      - i. internal versus external respiration
      - ii. diffusion of gases through respiratory membrane
      - iii. diffusion of gases from capillaries to cells
        - a) role of ATP in cellular function
        - b) aerobic metabolism
        - c) anaerobic metabolism

3. Gas Transport
    - a. Red Blood Cells
      - i. hemoglobin chemistry
      - ii. hematocrit
    - b. Oxygen-Hemoglobin dissociation curve
  4. Ventilation perfusion ratio
    - a. Anatomical shunts
    - b. Blood flow across the alveoli
- C. Blood volume circulation disturbances due to Cardiac, Trauma, Systemic Vascular Resistance
1. Orthostatic hypotension
  2. Oncotic fluid pressure
  3. Hydrostatic fluid pressure
  4. Capacitance of the venules and veins
- D. Cardiac output and the role in adequate circulation maintenance
1. Cardiac rate
    - a. Tachycardia
    - b. bradycardia
  2. Stroke volume
    - a. End-diastolic volume
    - b. Preload
  3. Role of alpha stimulation in the heart
  4. Role of beta stimulation in the heart
  5. Atrioventricular Synchronization
  6. Total peripheral Resistance
    - a. Precapillary arterioles and smooth muscle effects of alpha and beta cholinergic receptors, effects of hypoxia, acidosis, temperature changes, neural factors and catecholamines.
    - b. Cell and tissue beds and disruptions of membrane integrity, enzyme systems and acid-base balance.
- E. Buffer systems
1. Blood
  2. Respiratory
  3. Renal

### III. Pathophysiology of Respiration

- A. Pulmonary ventilation
1. Interruption of Nervous Control
    - a. Drugs
    - b. Trauma
    - c. Muscular dystrophy
    - d. Poliomyelitis
    - e. Neuromuscular junction blocking agents
  2. Structural Damage to the Thorax

3. Bronchoconstriction
  4. Disruption of airway patency
    - a. Infection
    - b. Trauma/burns
    - c. Foreign body obstruction
    - d. Allergic reaction
    - e. Unconsciousness (loss of airway tone)
- B. Oxygenation
- C. Respiration
1. External
    - a. Deficiencies due to environmental factors
      - i. altitude
      - ii. closed environments
      - iii. toxic or poisonous environments
    - b. Carbon dioxide retention
  2. Internal
    - a. Pathology typically related to changes in alveolar - capillary gas exchange
    - b. Typical disease processes
      - i. emphysema
      - ii. pulmonary edema
      - iii. pneumonia
      - iv. environmental/occupational exposure
      - v. drowning
  3. Cellular
- D. Rapid ventilation, exhaustion, dead space air movement
- E. Mechanical ventilation
1. Moving noncompliant lungs
- F. Breathing against an elevated diaphragm
- G. Decreases in lung compliance such as pneumonia, emphysema, and trauma
- H. Ventilation-perfusion mismatch
1. Ventilation defects
    - a. Pulmonary edema
    - b. Pneumonia
    - c. Atelectasis
    - d. Obstruction due to mucus plugs
    - e. Increased dead space ventilation due to emphysema
  2. Perfusion defects
    - a. Pulmonary emboli
    - b. Disruption of the normal chest architecture
- I. Disruptions in oxygen transport associated with diminished oxygen carrying capacity
1. Anemia
  2. Blood loss
- J. Disruptions in effective circulation
1. Shock

- a. Blood loss
    - b. Diminished peripheral resistance
    - c. Cardiac failure
  - 2. Emboli
  - 3. Increased capillary permeability
- K. Disruptions at the cellular level
  - 1. Acid-base balance
  - 2. Poisons/toxins
  - 3. Blood sugar changes
  - 4. Hormone effects
  - 5. Drugs
  - 6. Hypoxia

#### IV. Assessment of Adequate and Inadequate Respiration

- A. Capnometry/Capnography
  - 1. Purpose/definition
  - 2. Indications
  - 3. Contraindications
  - 4. Complications
  - 5. Procedure

#### V. Management of Adequate and Inadequate Respiration

- A. Respiratory Compromise
  - 1. Assure an adequate airway
  - 2. Review supplemental oxygen therapy
  - 3. Continuous Positive Airway Pressure (CPAP)/Bi-Level Positive Airway Pressure (BiPAP)
    - a. Definitions/Purpose
      - i. CPAP – device to provide continuous positive airway pressure in the spontaneously breathing patient
      - ii. BiPAP – device to provide differential positive airway pressure in the spontaneously breathing patient.
        - a) higher positive pressure during inspiration (e.g., 10 cm water pressure)
        - b) lower positive pressure during expiration (e.g., 5 cm water pressure)
        - c) Augments patient’s spontaneous breathing with positive pressure ventilation during inspiration
      - iii. increase lung compliance
      - iv. reduce alveolar collapse
      - v. increase laminar airflow
      - vi. decrease intubation rates
    - b. Indications
      - i. CHF/Acute pulmonary edema
      - ii. COPD/Asthma

- iii. near drowning
    - iv. similar equipment may be used for home treatment of sleep apnea
  - c. Contraindications
    - i. inability to tolerate the mask
  - d. Complications
    - i. requires adequate tidal volume
    - ii. patient must be alert and follow instructions
    - iii. patient must tolerate mask
    - iv. gastric insufflation
    - v. vomiting and aspiration risk
    - vi. barotrauma
    - vii. facial hair
    - viii. dysmorphic faces
  - e. Procedure
- 4. Assisted positive pressure ventilations
  - a. Purpose/definition
  - b. Indications
  - c. Contraindications
  - d. Complications
  - e. Procedure

## VI. Supplemental Oxygen Therapy

- A. Review and elaborate on the oxygen delivery devices used by EMRs, EMTs and AEMTs
- B. Oxygen administration and the patient with hypercapnia

## VII. Age-Related Variations in Pediatric and Geriatric Patients

# Airway Management, Respiration, and Artificial Ventilation

## Artificial Ventilation

### Paramedic Education Standard

Integrates complex knowledge of anatomy, physiology, and pathophysiology into the assessment to develop and implement a treatment plan with the goal of assuring a patent airway, adequate mechanical ventilation, and respiration for patients of all ages.

### Paramedic-Level Instructional Guideline

The Paramedic Instructional Guidelines in this section include all the topics and material at the AEMT level PLUS the following material:

- I. Comprehensive ventilation assessment
  - A. Purpose
  - B. Procedure
  - C. Minute Volume
  - D. Alveolar Volume
  - E. Evaluating the effects of artificial ventilation
  - F. Pulse oximetry
    1. Purpose
    2. Indications
    3. Contraindications
    4. Complications
    5. Procedure
  - G. Blood gas analysis
    1. pH
    2. PaCO<sub>2</sub>
    3. PaO<sub>2</sub>
    4. Bicarbonate
    5. Base deficit
  - H. Capnography Review
    1. Purpose
    2. Indications
    3. Contraindications
    4. Complications
    5. Procedure
- II. Review of ventilation devices used by EMRs, EMTs and AEMTs
  - A. Manual devices
    1. Purpose
    2. Indications
    3. Contraindications



4. Complications
5. Procedures
- B. Mechanical devices
  1. Purpose
  2. Indications
  3. Contraindications
  4. Complications
  5. Procedures

### III. Assisting patient ventilations

- A. Review of techniques used by EMRs, EMTs and AEMTs
  1. Purpose
  2. Indications
  3. Contraindications
  4. Complications
  5. Procedures
- B. Review of the physiologic differences between normal and positive pressure ventilation
- C. BiPAP/CPAP
  1. Purpose
  2. Indications
  3. Contraindications
  4. Complications
  5. Procedure
- D. Positive End Expiratory Pressure (PEEP)
  1. Purpose
    - a. provide positive airway pressure to prevent alveolar collapse at the end of expiration
    - b. refers to positive pressure situations
    - c. to increase lung compliance
  2. Indications
    - a. hemodynamically stable patient receiving positive pressure ventilation
      - i. COPD
      - ii. CHF
      - iii. drowning
    - b. Patient transfer
  3. Contraindications
  4. Complications
    - a. can diminish venous return
    - b. can cause barotrauma
  5. Procedure

### IV. AgeRelated Variations in Pediatric and Geriatric Patients