

Alaska EMS

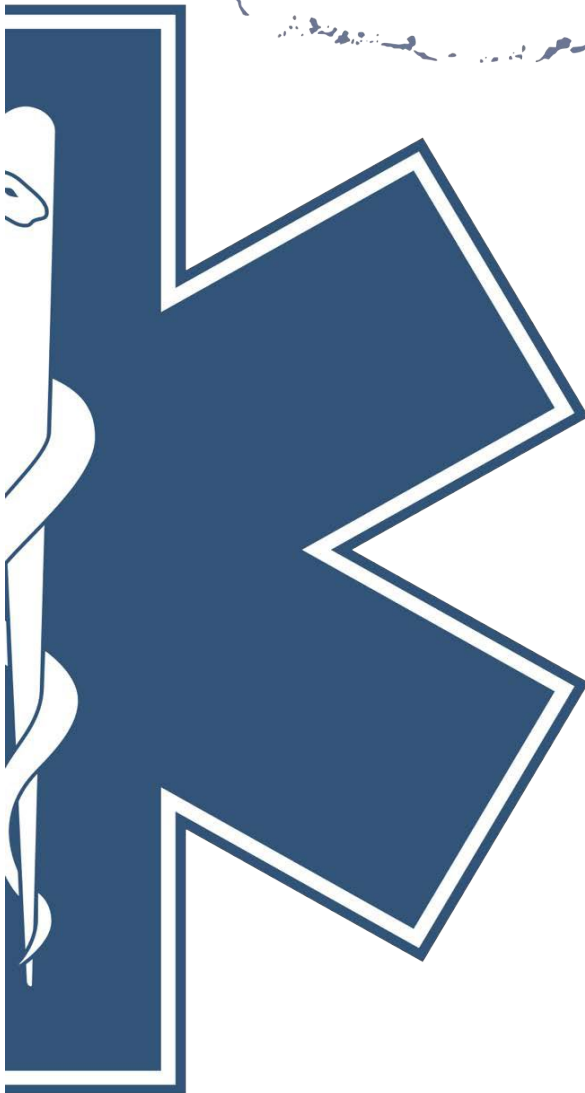
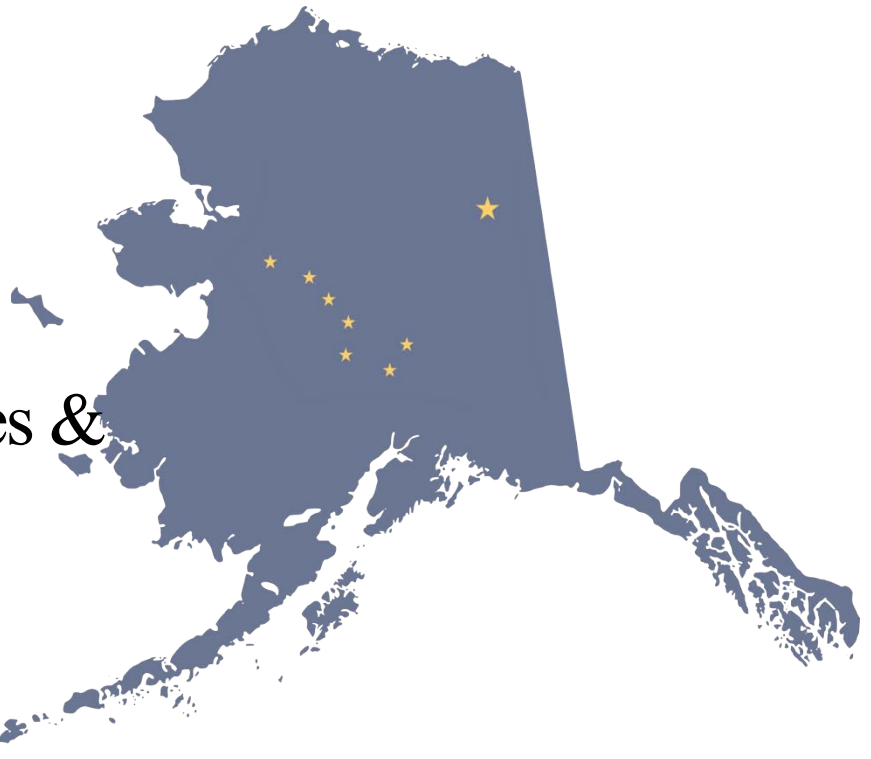
EMT-I to 2019

Transition

Course Objectives &

Alaska-Specific

Lesson Content



Alaska Council on EMS Committees:
EMS Training Committee and Implementation Task Force
in cooperation with the
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Division of Public Health
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PREFACE

The mission of the EMT I to 2019 EMT I Transition training is to allow EMT Is who are currently certified to practice at the new 2019 Scope of Practice. The 2019 Alaska EMT I consists of a curriculum approved by the State Office of EMS (OEMS) that meets or exceeds applicable objectives set out in the United States Department of Transportation, National Highway Traffic Safety Administration's National Emergency Medical Services Education Standards, January 2009, with the addition of certain skills and knowledge applicable to the Alaskan environment. The base of the 2019 Alaska EMT 1 objectives and lesson plans may be found in the Emergency Medical Technician Instructional Guidelines developed by NHTSA to meet the National Emergency Medical Services Education Standards.

https://www.ems.gov/pdf/education/National-EMS-Education-Standards-and-Instructional-Guidelines/EMT_Instructional_Guidelines.pdf. However, the 2019 Alaska specific objectives and lesson plans are included in this document.

Section [7 AAC 26.040](#) of the Alaska Administrative Code (regulations) defines the scope of certified activities on which the objectives in this document are based. [7 AAC 26.050](#) sets forth the criteria for EMT I course approval, including requiring that EMT I courses be at least 140-160 hours in length. This document divides the course content into “sections,” each of which has a recommended length. The times for each section are estimates only and will vary with the students’ and system’s needs.

This supplemental curriculum outlines what state-specific knowledge and skills are expected of an Alaska EMT I. It does not prohibit the physician sponsor from specifying the scope of activities, whether that be limiting practice to a subset of the EMT I skills or expanding the EMT I’s skills in accordance with 7 AAC 26.670. Evolving issues should be covered thoroughly by the instructor.

Psychomotor skills in which the 2019 EMT I should be proficient are established in the Alaska Scope of Practice and elaborated in the Alaska Psychomotor Skills Portfolio.

Lesson 1: PREPARATORY

National Education Standards:

Applies fundamental knowledge of the EMS system, safety/well-being of the EMT, and medical/legal and ethical issues to the provision of emergency care.

EMS Systems, Research, and Public Health

Alaska Specific Objectives:

1.1 Describe Alaska's EMS system and the changes made in the 2019 Regulation updates.

Lesson Content:

- A. Distinguish each of the following Alaska EMS levels: ETT, EMT I, EMT II, EMT III, AK(AEMT), MICP
 - a) Include the 2019 scope of practice for each level
 - b) Explain implications of expanded scope within each level
 - c) Discuss scope of practice when not with a service
2. Describe the value of *Guide for EMS Certification and Licensure Manual*- including Appendix A (referenced in the 2019 Regulations)

Lesson 2: PHARMACOLOGY – Medication Administration & Emergency Medications

National Education Standards:

Applies fundamental knowledge of the medications that the EMT may assist with/administer to a patient during an emergency.

Alaska Specific Objectives

- 2.1 According to the criteria in the appropriate skill sheet in the *Alaska Psychomotor Portfolio*, demonstrate the administration of medication to a simulated patient via the following routes:
 - a. Intranasal (mucosal atomizer and prefilled cartridge device)
 - b. Oral mucosa: Sublingual, buccal
 - c. Intramuscular (auto-injector and needle/syringe)
 - d. Oral
 - e. Nebulized
 - f. Multi-Dose Inhaler (with and without spacer)
- 2.2 Demonstrate administration of medical director approved vaccinations.
- 2.3 Medications- Give the generic and trade names, actions, indications, contraindications, routes of administration, side effects, interactions, and doses of the following medications that an EMT may administer or assist in administering (note: those listed are not included in the National Standard Curriculum):
 - a. Aspirin
 - b. Naloxone (opioid antagonist)
 - c. Unit dose auto-injectors (such as nerve agent antidote kits)
 - d. Inhaled bronchodilators (MDI and nebulizer)
 - e. Epinephrine 1 mg/ml concentration IM for anaphylaxis
 - f. Over the Counter (OTC) analgesics
 - g. Medical director approved vaccinations
- 2.4 Using the Medical Direction Requirements listed in the Alaska Scope of Practice, differentiate between the three levels of authorization to administer medications, and give an example of a medication permissible under each level.

Psychomotor objectives:

- 2.5 Given a patient scenario, state and/ or demonstrate the correct drug, dosage, and administration route(s) for:
 - a. Aspirin
 - b. Naloxone (opioid antagonist)
 - c. Unit dose auto-injectors (such as nerve agent antidote kits)
 - d. Inhaled bronchodilators (MDI and nebulizer)
 - e. Epinephrine 1 mg/ml concentration IM for anaphylaxis
 - f. Over the counter analgesics

Lesson Content

- A. Routes of Administration
 1. Alimentary Tract
 - a) Oral

- b) Sublingual
 - 2. Parenteral
 - a) Intramuscular
 - 1) Lateral Deltoid- easily accessible in many patients, low risk of complications
 - 2) Vastus Lateralis- easily accessible in many patients, significant blood flow due to large muscle group; low risk of complications
- B. Administration of Medication to a Patient
 - 1. The "Rights" of Drug Administration
 - a) Right patient – prescribed to patient or indicated by standing orders
 - b) Right medication – patient condition and confirmed with double check
 - c) Right route – patient condition
 - d) Right dose – prescribed to patient
 - e) Right time – within expiration date
 - 2. Techniques of Medication Administration (Advantages, Disadvantages, Techniques explored in other content areas of this document)
 - a) Intramuscular (manual)
 - b) Aerosolized
 - c) Nebulized
 - d) Sublingual
 - e) Intranasal
- C. Reassessment and Documentation
 - 1. Data – Indications for medication and route of administration
 - 2. Action – Medication and dose administered
- D. Response – Effect of medication and reassessment
- E. Sample drug information cards and other supporting materials are available in the Alaska EMS instructor reference repository.
- F. List the Medical Direction Requirements in the Alaska Scope of Practice and differentiate between the three levels of authorization
 - 1. (X) No Medical Director Sponsorship or Control Required.
 - 2. (X) Medical Director Sponsorship-
 - a) A provider must be under the sponsorship of a medical director with standing orders that authorize the use of the skill or medication.
 - 3. (X*) Medical Control in absence of a Medical Director Sponsorship-
 - a) An EMT that is not under the sponsorship of a medical director may utilize this skill or medication, but must contact the Emergency Department for verbal authorization, time the order was given, and the order given.
- G. Examples of medication or skills administered or provided under each level:
 - 1. (X) No Medical Director Sponsorship or Control Required.
 - a) Splinting
 - b) Oxygen
 - c) Opioid antagonist
 - 2. (X) Medical Director Sponsorship-
 - a) Medical Director approved vaccinations
 - b) Chemical Hazardous Materials auto-injector antidote
 - c) Epi 1/mg/1ml IM
 - 3. (X*) Medical Control in absence of a Medical Director Sponsorship-
 - a) OTC medications
 - b) Bronchodilators other than the patient's own medication
 - c) Nitroglycerin- Patient's own medication

4. Refer to Alaska State Scope of Practice referenced in regulations for additional skills and medications under each of the categories.
 - a) Using the fillable document available in the instructor repository, have students indicate the medical direction requirements for each medication in the EMT I scope of practice.
- H. Drug Profiles
 1. The student should develop a drug profile for the following medications allowed by the Alaska OEMS for administration by EMT Is in Alaska. Note: these marked with an* are medications **not** approved in the National EMT Instructional Guidelines:
 - a) Aspirin
 - b) Inhaled bronchodilators
 - c) Epinephrine auto-injectors
 - d) *Epinephrine 1 mg/1ml for anaphylaxis
 - e) Oral Glucose
 - f) *Oral Over the Counter (OTC) analgesics for pain or fever
 - 1) Acetaminophen
 - 2) Ibuprofen
 - g) Sublingual nitroglycerine for chest pain (patient's own)
 - h) *Chemical hazardous materials auto-injector antidote

Lesson 3: Airway Management

National Education Standards:

Applies fundamental knowledge of the anatomy and physiology to patient assessment and management in order to assure a patent airway adequate mechanical ventilation, and respirations for patients of all ages.

- 3.1 Review normal anatomy and physiology of the airway.
- 3.2 Discuss the use of CPAP, when it is indicated and how to set it up.
- 3.3 Discuss causes for difficult airways.
- 3.4 Identify indications for supraglottic airway.
- 3.5 Describe indications and contraindications for inserting the supraglottic airway.
- 3.6 Discuss and understand the use of quantitative measurement of patient oxygenation and end-tidal CO₂.
- 3.7 List the steps to insert a supraglottic airway.
- 3.8 Describe complications of insertion of a supraglottic airway.

Lesson Content

- A. Exchange and Transport of Gases in the Body
 1. Diffusion
 - a) Diffusion of gases
 - b) O₂/CO₂ dissolve in water and pass through the alveolar membrane by diffusion
 - c) Diffusion: passage of solution from area of higher concentration to lower concentration
 2. Oxygen Content of Blood
 - a) Dissolved O₂ crosses pulmonary capillary membrane and binds to hemoglobin (Hgb) of red blood cell
 - b) Oxygen is carried on hemoglobin molecule as well as dissolved in plasma
 - c) Approximately 97% of total O₂ is bound to Hemoglobin
 - d) Excess oxygenation may be harmful due to hyperoxemia.
 - e) O₂ Saturation:
 - 1) Compares available O₂ (the O₂ dissolved in plasma) to O₂ carrying capacity of blood
 3. Carbon Dioxide Content of the Blood
 - a) CO₂ is a byproduct of cellular work (Cellular Respiration)
 - b) CO₂ is transported in blood as bicarbonate ion
 - c) About 33% is bound to hemoglobin
 - d) As O₂ crosses into blood, CO₂ diffuses into Alveoli
 4. Inadequate Ventilation
 - a) Occurs when body cannot compensate for increased O₂ demand or maintain O₂/CO₂ balance
 - b) Many Causes
 - 1) Infection
 - 2) Trauma
 - 3) Brain stem insult
 - 4) Noxious or hypoxic atmosphere
 - 5) Renal failure
 - c) Multiple Symptoms
 - 1) Altered response
 - 2) Respiratory rate changes (up or down)

- 3) Respiratory pattern changes
 - (a) Cheyne-Stokes
 - (1) Gradually increasing rate and tidal volume followed by gradual decrease.
 - (2) Associated with brain stem insult
 - (b) Kussmaul's
 - (1) Deep, gasping respirations
 - (2) Common in diabetic coma
 - (3) Increased Intracranial Pressure (ICP)
 - (c) Central Neurogenic Hyperventilation
 - (1) Deep rapid respirations similar to Kussmaul's
 - (2) Increased Intracranial Pressure
 - d) Common Endpoints
 - 1) Tissue / Brain ischemia, injury, and death
- B. Airway Evaluation
1. Essential Parameters
 - a) Rate
 - b) Regularity
 - c) Effort
 2. Recognition of Airway Problems
 - a) Difficulty in rate, regularity, or effort: dyspnea
 3. Visual Signs & Symptoms
 4. Quantitative Measurements of patient oxygenation and end-tidal CO₂
- C. Airway Management
1. Noninvasive Maneuvers
 2. Suctioning
 3. Basic Airway Procedures:
 - a) Nasal airway
 - b) Oral airway
 4. Advanced Airway Management- Supraglottic Airway (SGA)
 - a) Supraglottic airways are primarily designed to enter the oropharyngeal space, above the glottis. There are a number of SGAs on the market, to include: EOA, King LT, i-gel, air- Q, SALT, and LMA
- D. Supraglottic Airways
1. Advantages
 - a) Designed to be passed blindly
 - b) Offers a more secure airway than an oral or naso-pharyngeal airway
 2. Indications
 - 1) Pulseless, apneic patient (no spontaneous respirations)
 - 2) Patients that are apneic and can tolerate an oropharyngeal airway
 - 3) Need for alternative airway management when paramedics are not able to provide endotracheal intubation.
 3. Contraindications
 - a) Age and weight restrictions not consistent with manufacturer's recommendations
 - b) Conscious patient with a gag
 - c) Caustic ingestion
 4. Review the following airways, per manufacturer's recommendations
 - a) I-gel
 - b) King Airway
 - c) Combi-Tube
 - d) Laryngeal Mask Airway (LMA)
 - e) Others that the agencies in your area may use

E. CPAP

1. Clinical Indications:
 - a) Symptomatic patients with moderate-to-severe respiratory distress as evidenced by at least two (2) of the following:
 - 1) Rales (crackles)
 - 2) Dyspnea with hypoxia ($SpO_2 < 90\%$ despite O_2)
 - 3) Dyspnea with verbal impairment- i. e., cannot speak in full sentences
 - 4) Accessory muscle use
 - 5) Respiratory rate > 24 /minute despite O_2
 - 6) Diminished tidal volume
2. Contraindications
 - a) Respiratory or cardiac arrest.
 - b) Systolic blood pressure < 90 systolic.
 - c) Lack of airway protective reflexes
 - d) Significant altered level of consciousness (unable to follow verbal instructions or signal distress).
 - e) Vomiting or active upper GI bleed.
 - f) Signs and symptoms of pneumothorax.
 - g) Significant facial injury or physical deformity preventing mask seal.
 - h) Suspected significant intracranial hemorrhage.
3. Procedure:
 - a) Place patient in a seated position and EXPLAIN THE PROCEDURE TO THE PATIENT
 - b) AVOID INTERRUPTED THERAPY:
 - 1) CPAP therapy needs to be continuous and should not be removed unless the patient cannot tolerate the mask or experiences continued or worsening respiratory failure
 - c) Assess vital signs (BP, HR, RR and SpO_2).
 - d) Place patient on continuous pulse oximetry.
 - e) Place patient on nasal capnography, if available.
 - f) Set up your equipment per your manufacturer's recommendations.
 - g) Place and secure the mask, per manufacturer's recommendations. Secure with provided straps, progressively tightening as tolerated to minimize air leak. Ensure that the mask fits comfortably, seals the bridge of the nose, and fully covers the nose and mouth.
 - h) Administer oxygen per manufacturer's recommendations. Start with lowest continuous pressure that appears effective. Adjust pressure following manufacturer instructions or standing orders to achieve the most stable respiratory status utilizing the signs listed in (12. & 13.) below as a guide.
 - i) For oxygen flow driven devices such as Boussignac device:
 - 1) Adjust oxygen flow to 15 LPM initially. Monitor patient continuously, recording vital signs every 5 minutes
 - j) Actively coach patient to improve tolerance of therapy.
 - k) Inline nebulization should be initiated as necessary per standing orders for asthma, wheezing, COPD and other pulmonary conditions as indicated.
 - l) Assess patient for improvement as evidenced by the following:
 - 1) Reduced dyspnea
 - 2) Reduced verbal impairment, respiratory rate and heart rate.
 - 3) Increased SpO_2
 - 4) Stabilized blood pressure
 - 5) Appropriate $ETCO_2$ values and waveforms
 - 6) Increased tidal volume.

- m) Observe for signs of deterioration or failure of response to CPAP:
 - 1) Decrease in level of consciousness
 - 2) Sustained or increased heart rate, respiratory rate or increased BP
 - 3) Sustained low or decreasing SpO₂ readings
 - 4) Rising ETCO₂ levels or other ETCO₂ evidence of ventilatory failure
 - 5) Diminished or no improvement in tidal volume
- n) If patient deteriorates, or does not improve rapidly in a relatively short period of time:
 - 1) Troubleshoot equipment.
 - 2) Consider BVM or advanced airway
 - 3) Assess for tension pneumothorax.
 - 4) Assess for possibility of hypotension and resultant hypoxia due to significantly reduced preload.
 - 5) Patient may suffer from relative hypotension and a resultant hypoxia if chronically hypertensive.
- o) Document procedure, patient response, and any complications in the PCR (Patient care record).
- p) SPECIAL NOTES:
 - 1) Advise receiving hospital as soon as possible so they can be prepared for patient.
 - 2) Do not remove CPAP until hospital therapy is ready to be placed on patient.
 - 3) Watch patient for gastric distention.
 - 4) Continuous observation and assessment are critical.

Lesson 4: **Medicine**

National Education Standards:

Applies fundamental knowledge to provide basic emergency care and transportation based on assessment findings for an acutely ill patient.

Abdominal and Gastrointestinal Disorders

Alaska Specific Objectives

- 4.1 Discuss the use of over-the-counter (OTC) medications for pain and fever in relation to gastrointestinal and urologic emergencies.

Lesson Content

- A. Although patients may experience severe pain with gastrointestinal and urologic emergencies, over-the-counter medications within the Alaska EMT-I's scope of practice should be administered with caution.
- B. Review the drug cards, specifically indications, contraindications, and side effects, for ibuprofen and acetaminophen.
- C. Discuss the implications of administration of these medications to a patient with:
 - 1. Nausea (may precipitate vomiting)
 - 2. Liver damage or illness (acetaminophen may be harmful)
 - 3. Renal damage or illness (ibuprofen may be harmful)
- D. Refer to agency protocols or contact medical control if needed

Cardiovascular Emergencies

National Education Standards:

Applies fundamental knowledge to provide basic emergency care and transportation based on assessment findings for an acutely ill patient.

Alaska Specific Objectives

4.2 Demonstrate appropriate lead placement for 4, and 12-lead ECG acquisition

Lesson Content

- A. Lead Placement (General Information)
 - 1. Discuss proper placement of electrodes
 - 2. Discuss incorrect placement
 - a) Avoid placing monitoring electrodes over bone,
 - b) large muscle masses and excessive hair. If necessary, shave a small area for the electrode.
 - 3. If possible, clean each electrode area with alcohol or 4x4 to remove dirt and body oil, ensure area is dry
- B. Limb Lead placement:
 - 1. White (RA) electrode on the right arm.
 - 2. Black (LA) electrode on the left arm.
 - 3. Red (LL) electrode on the left leg.
 - 4. Green (RL) electrode on the right leg.
- C. Precordial leads placement:
 - 1. V1 Right side of the sternum in the fourth intercostal space
 - 2. V2: Left side of the sternum in the fourth intercostal space
 - 3. V3: Left side: Midway between V2 and V4.
 - 4. V4: Left side: Midclavicular line in the fifth intercostal space.
 - 5. V5: Left side: Anterior axillary line at the same level as V4
 - 6. V6: Midaxillary line at the same level as V4.
- D. Discuss acquiring and transmitting 12 leads and evaluating tracing for quality baseline.

Toxicology

Alaska Specific Objectives

- 4.3 Describe the prevalence, morbidity and mortality, and management considerations for each of these toxicologic emergencies in Alaska:
<https://www.cdc.gov/nchs/pressroom/states/alaska/alaska.htm>
- a. Opioid Overdoses
 - b. Carbon Monoxide (CO) Poisoning

Alaska Specific Psychomotor Objectives

- 4.4 Demonstrate the use of naloxone intranasal
- 4.5 Demonstrate the use of chemical hazardous material auto-injector antidote kit

Lesson Content:

- A. Opioid Overdoses
 - 1. Discuss the occurrence of Opioid overdoses in Alaska
 - a) 60% of all drug overdose deaths in Alaska in 2018 were caused by opioids
 - 2. Signs and symptoms of Opioid overdose
 - a) Euphoria

- b) Hypotension
- c) Respiratory depression
- d) Pinpoint pupils
- e) Depending on agent can also have:
 - 1) Nausea
 - 2) Vomiting
 - 3) Constipation
- 3. Treatment of Opioid overdoses
 - a) Establish and maintain a patent airway
 - b) Assist breathing, if necessary to maintain adequate O₂ saturation
 - c) Administer naloxone
- B. CO Poisoning
 - 1. Alaska has the second highest death rate from CO poisoning in the nation.
 - a) Carbon Monoxide is a colorless and odorless gas that is a byproduct of combustion.
 - 2. Signs and symptoms of mild to moderate CO poisoning are:
 - a) Headache
 - b) Fatigue
 - c) Shortness of breath
 - d) Nausea
 - e) Dizziness
 - 3. Signs and symptoms of severe CO poisoning are:
 - a) Mental confusion
 - b) Vomiting
 - c) Loss of muscular coordination
 - d) Loss of consciousness
 - e) Death
 - 4. Discuss treatment of the CO patient
 - a) Remove patient from environment
 - b) Administer high concentration oxygen

Lesson 5: Psychomotor Skills New in 2019 EMT I

Lesson Content

- A. Airway- supraglottic
- B. CPAP- Initiation and placement of therapy
- C. Cardiac Monitoring- 12-Lead ECG acquisition and transmission
- D. CO Monitoring
- E. Intramuscular injections
 - 1. Epinephrine 1mg/1ml
 - 2. Vaccines (as authorized by medical direction)
 - 3. Chemical hazardous materials auto-injector antidote
- F. Opioid antagonist- nasal administration
- G. Nebulized medications