



Emergency Medical and Trauma Services Branch

# **Intravenous / Intraosseous Therapy And Medication Administration Course Curriculum**

For the Colorado Emergency Medical Technician (EMT)

Revised January 2018

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## **INTRODUCTION**

The Colorado Department of Public Health and Environment under the auspices of *6 CCR 1015-3, Chapter 2 “Rules Defining the Qualifications and Duties of Emergency Medical Services Medical Directors and the Authorized Medical Acts of Emergency Medical Technician”* establishes the scope of practice for all levels of EMS providers and is commonly referred to as the “The Practice Rules.”

Within the Practice Rules it is stated that a *Colorado certified* Emergency Medical Technician (EMT), upon completion of an education program approved by the Colorado Department of Public Health and Environment (CDPHE) Emergency Medical and Trauma Services (EMTS) section and under the authorization (sponsorship) of a Colorado licensed physician, may establish a peripheral intravenous line, administer crystalloid fluids, collect venous blood samples, and administer certain medications.

There is no specific state certification for graduates of an EMT-IV/IO Therapy course. It is the responsibility of the Colorado licensed physician, prior to authorizing (sponsoring) a Colorado EMT to perform these skills, to assure that the sponsored EMT meets the eligibility requirement of successful completion of a state approved education program.

## **CURRICULUM**

This curriculum was developed by the CDPHE EMTS section and the State Emergency Medical and Trauma Services Advisory Council (SEMTAC) to satisfy the requirements for a department-approved EMT-IV education group.

EMT-IV Education Groups recognized by the EMTS section, are obligated to present, *at a minimum*, the full content of this curriculum.

### **1. REQUIREMENTS**

- a. This document contains a description of the minimum curriculum content that a Colorado certified EMT must complete to be eligible for physician sponsorship in the performance of phlebotomy, intravenous therapy, and medication administration.
- b. Education programs should utilize this material in constructing their courses.
- c. Instructor and student supportive materials on the topics contained in this curriculum may be obtained from any source yet must reflect currently accepted standards of medical practice for the skills included.
- d. While the contents of this curriculum may be expanded to provide material relevant to other levels of health care providers, any material added to this curriculum by an EMT-IV Education Group does not constitute authorization for performance of skills beyond those defined by the Practice Rules for EMT providers.

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## 2. RECOMMENDED TIME

- a. Recommended classroom time to present this content is approximately **28 hours**. The exact time may vary slightly based on the number and experience level of the class participants and the addition of any optional content.

## CLINICAL EXPERIENCE

Clinical experience is required of each student prior to successful EMT-IV/IO Therapy course completion.

### 1. EDUCATION

- a. Clinical experience shall consist of the following:
  - no less than ten (10) successful venipunctures utilizing over-the-needle intravenous catheters
  - No less than five (5) successful intraosseous placement on mannequins or live patients
  - No less than five (5) intramuscular injections on mannequins or live patients
- b. No less than five (5) of the required ten (10) successful venipunctures must be performed on actual patients in a clinical environment.

### 2. CLINICAL AGREEMENTS

- a. The education program must have written agreements/contracts in place with all clinical sites and/or agencies prior to presenting the IV/IO Therapy course.

## MEDICAL ACTS ALLOWED

Before a Colorado certified EMT may perform invasive procedures related to the collection of human blood samples, the initiation of intravenous therapy, or the administration of intravenous, atomized or nebulized medications, the EMT must complete the following requirements in the sequence listed:

### 1. EDUCATION

- a. Successful completion of a course of study approved by the Colorado Department of Public Health and Environment (CDPHE), Emergency Medical and Trauma Services (EMTS) section which contains ***at a minimum*** the material included in this curriculum.

### 2. AUTHORIZATION

- a. Formal sponsorship is required for the performance of any or all skills listed within the Practice Rules by a Colorado licensed physician who is registered with EMTS as a recognized EMS Medical Director.
- b. This medical sponsorship shall not include basic or advanced life support skills not listed in the Practice Rules, unless the sponsoring physician has applied for and received a waiver to the Practice Rules from the Department.

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## **SKILLS PERMITTED**

1. Human venipuncture for the following purposes:
  - a. Determination of blood glucose measurements
  - b. Collection of a venous blood samples
  - c. Initiation of intravenous therapy to include the following purposes
    - (i) Fluid replacement utilizing sterile crystalloid solutions
    - (ii) Medication administration route utilizing sterile crystalloid solutions
2. Venous sites permitted shall be limited to peripheral veins (excluding external jugular) in both adults and children
3. Measurement and interpretation of blood glucose levels
4. Administration of intravenous dextrose
5. Administration of intravenous and atomized naloxone (Narcan)
6. Administration of nebulized albuterol (Proventil)
7. Administration of intravenous and oral dissolving tabs of ondansetron (Zofran)
8. Administration of intramuscular epinephrine 1:1,000
9. Intraosseous placement for the following purposes:
  - a. Fluid replacement utilizing crystalloid solutions for patients in extremis (cardiac arrest, etc.)
  - b. Medication administration

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## IV THERAPY AND MEDICATION ADMINISTRATION COURSE OUTLINE

MODULES (with suggested time breakdown)	RECOMMENDED MODULE TIMES	RECOMMENDED EMT CE HOURS
<b>1. Course Introduction</b>  <div style="text-align: right;">Didactic 0:30 Lab 0:00</div>	0:30	Preparatory - 0.5 CEU
<b>2. Roles, Responsibilities, and Legal Considerations</b>  <div style="text-align: right;">Didactic 1:00 Lab 0:00</div>	1:00	Preparatory - 1.0 CEU
<b>3. Cellular and Vascular Anatomy and Physiology</b>  <div style="text-align: right;">Didactic 1:30 Lab 0:00</div>	1:30	Medical - 1.5 CEU
<b>4. Shock Principles</b>  <div style="text-align: right;">Didactic 1:30 Lab 0:00</div>	1:30	Medical - 1.5 CEU <i>or</i> Trauma - 1.5 CEU
<b>5. Body Substance Isolation</b>  <div style="text-align: right;">Didactic 0:30 Lab 0:00</div>	0:30	Preparatory - 0.5 CEU
<b>6. Vascular Access Site Selection and Preparation</b>  <div style="text-align: right;">Didactic 0:45 Lab 0:45</div>	1:30	Assessment - 1.5 CEU
<b>7. Intravenous Therapy and Phlebotomy Equipment</b>  <div style="text-align: right;">Didactic 0:15 Lab 0:30</div>	0:45	Elective - 0.75 CEU
<b>8. Intravenous Therapy, Venipuncture, and Phlebotomy Technique</b>  <div style="text-align: right;">Didactic 0:30 Lab 1:00</div>	1:30	Medical - 1.5 CEU <i>or</i> Trauma - 1.5 CEU

<b>MODULES</b> (with suggested time breakdown)	<b>RECOMMENDED MODULE TIMES</b>	<b>RECOMMENDED EMT CE HOURS</b>
<b>9. Combining Phlebotomy and Intravenous Therapy Techniques</b>  Didactic 0:15 Lab 0:45	1:00	Medical - 1.0 CEU <i>or</i> Trauma - 1.0 CEU
<b>10. Drip Rate Calculation</b>  Didactic 1:00 Lab 1:00	2:00	Medical - 2.00 CEU
<b>11. Maintenance of Vascular Therapy</b>  Didactic 0:30 Lab 0:30	1:00	Medical - 1.0 CEU
<b>12. Intraosseous Injection Site Selection and Preparation</b>  Didactic 0:45 Lab 0:45	1:30	Assessment - 1.5 CEU
<b>13. Intraosseous Equipment</b>  Didactic 0:15 Lab 0:30	0:45	Elective - 0.75 CEU
<b>14. Intraosseous Technique</b>  Didactic 0:30 Lab 1:00	1:30	Medical - 1.5 CEU <i>or</i> Trauma - 1.5 CEU
<b>15. Vascular Therapy in the Management of Adult Care</b>  Didactic 1:30 Lab 0:00	1:30	Medical - 1.5 CEU <i>or</i> Trauma - 1.5 CEU
<b>16. Special Considerations in Vascular Therapy in the Management of Pediatric Care</b>  Didactic 1:30 Lab 0:00	1:30	Pediatrics - 1.5 CEU
<b>17. Intramuscular Injection Site Selection and Preparation</b>  Didactic 0:30 Lab 0:00	0:30	Assessment - 0.5 CEU

<b>18. Intramuscular Injection Equipment</b>  Didactic 0:15 Lab 0:30	0:45	Elective - 0.75 CEU
<b>19. Intramuscular Injection Technique</b>  Didactic 0:30 Lab 1:00	1:30	Medical - 1.5 CEU <i>or</i> Trauma - 1.5 CEU
<b>20. Documentation</b>  Didactic 0:30 Lab 0:00	0:30	Preparatory - 0.5 CEU
<b>21. Blood Glucose Testing and Administration of Intravenous Dextrose</b>  Didactic 0:30 Lab 1:00	1:30	Assessment - 1.5 CEU <i>or</i> Medical - 1.5 CEU
<b>22. Administration of Ondansetron (Zofran) – Intravenous and ODT</b>  Didactic 0:30 Lab 0:30	1.00	Medical - 1.0 CEU
<b>23. Administration of Epinephrine 1:1,000 – Intramuscular</b>  Didactic 0:30 Lab 0:30	1.00	Medical - 1.0 CEU
<b>24. Administration of Naloxone (Narcan), Intravenous and Atomized – Optional</b>  Didactic 0:30 Lab 0:30	1.00	Medical - 1.0 CEU



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<b>MODULES</b> (with suggested time breakdown)	<b>RECOMMENDED MODULE TIMES</b>	<b>RECOMMENDED EMT CE HOURS</b>
<b>25. Administration of Nebulized Albuterol (Proventil) – Optional</b>  Didactic 0:30 Lab       0:30	1.00	Assessment - 1.0 <i>or</i> Medical - 1.0 CEU
<b>TOTAL CLASSROOM HOURS</b>	<b>28.25 hours</b>	<b>Preparatory - 2.5</b> <b>Assessment - 6.0</b> <b>Pediatrics - 1.5</b> <b>Medical - 18.5</b> <b>Trauma - 8.5</b> <b>Elective - 2.25</b>
<b>26. Cognitive Testing</b>	Varies	(A minimum of a final, cumulative written exam is required)
<b>27. Psychomotor Skills Testing</b>	Varies	
<b>28. Clinical Requirements</b>	Varies	
<b>29. Clinical Experience</b>	Varies	

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## **COURSE LEARNING OBJECTIVES**

### **1. COURSE INTRODUCTION**

*Upon completion of this module, the EMT should be able to:*

#### **Cognitive Objectives**

- 1.1. Describe this course's duration, completion requirements, and policies and procedures
- 1.2. Describe the history of vascular therapy
- 1.3. Describe the purpose of this courses as it relates to the EMT-IV

#### **Psychomotor Objectives**

None identified

#### **Affective Objectives**

- 1.4. Describe personal attitudes regarding the performance of vascular skills

### **2. ROLES, RESPONSIBILITIES, AND LEGAL CONSIDERATIONS**

*Upon completion of this module, the EMT should be able to:*

#### **Cognitive Objectives**

- 2.1. Describe the purpose of the Practice Rules and the regulatory body which establishes those Rules
- 2.2. Summarize the provision in the Practice Rules which authorizes the EMT to establish vascular access
- 2.3. Describe the relationship between the EMT-IV and his/her medical director
- 2.4. State the local protocol for authorization of the EMT to establish vascular therapy (content to be established by local education programs)
- 2.5. Differentiate between protocols and standing orders by definition and field practice
- 2.6. Describe the need for a standard of care
- 2.7. Describe the ethical responsibilities of an EMT-IV
- 2.8. Describe the importance of professionalism for an EMT-IV
- 2.9. Discuss the importance of documentation as it applies to the EMT-IV
- 2.10. List and describe the legal issues of concern to an EMT-IV
  - 2.10.1. Describe the approach to be taken with a patient refusing vascular therapy
  - 2.10.2. Discuss the principles of consent to treatments as they apply to the EMT-IV
  - 2.10.3. Discuss abandonment as it applies to the EMT with additional vascular therapy education
  - 2.10.4. Discuss considerations when obtaining a blood alcohol sample
  - 2.10.5. Discuss in extremis and its implications for intraosseous access

#### **Psychomotor Objectives**

None identified

#### **Affective Objectives**

- 2.11. Present a variety of patient scenarios, describe the appropriate action the EMT-IV should take from an ethical, legal, and/or Practice Rules standpoint and explain the rationale behind those decisions.

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### 3. CELLULAR AND VASCULAR ANATOMY AND PHYSIOLOGY

*Upon completion of this module, the EMT should be able to:*

#### **Cognitive Objectives**

- 3.1 Define the following terms:
  - 3.1.1. Homeostasis
  - 3.1.2. Isotonic
  - 3.1.3. Hypotonic
  - 3.1.4. Electrolytes
  - 3.1.5. Intracellular fluid
  - 3.1.6. Extracellular fluid
  - 3.1.7. Interstitial fluid
  - 3.1.8. Intravascular fluid
  - 3.1.9. Crystalloid solution
  - 3.1.10. Colloid solution
- 3.2. Describe the principles of the body's fluid balance
  - 3.2.1 Explain the role of water
  - 3.2.2 Explain the role of electrolytes
- 3.3. Describe how osmotic pressure, oncotic pressure, and diffusion influence fluid balance in the body
- 3.4. Identify the properties of isotonic, hypertonic, and hypotonic intravenous therapy
- 3.5. solutions
- 3.6. Explain the effects of infusion of isotonic, hypertonic, and hypotonic IV solutions upon the intracellular, intravascular, and interstitial spaces
- 3.7. Describe the role each of the following systems have on body fluid regulation
  - 3.7.1. Cardiovascular system
  - 3.7.2. Renal system
  - 3.7.3. Nervous system
  - 3.7.4. Respiratory system
- 3.8. List the components of blood and their function
- 3.9. Briefly describe the anatomy of the circulatory system
  - 3.9.1. List three differences between veins and arteries
  - 3.9.2. Describe the structure and function of bone in the circulatory system
- 3.10. Define and explain the significance of hemoglobin and hematocrit
- 3.11. Describe the blood clotting process
- 3.12. State at least three factors which may alter the body's ability to form clots

#### **Psychomotor Objectives**

None identified

#### **Affective Objectives**

None identified

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#### 4. **SHOCK PRINCIPLES**

*Upon completion of this module, the EMT should be able to:*

##### **Cognitive Objectives**

- 4.1. Review various types of shock and the role of vascular therapy for:
  - 4.1.1. Hypovolemic shock
  - 4.1.2. Cardiogenic shock
  - 4.1.3. Distributive shock
    - 4.1.3.1 Anaphylactic shock
    - 4.1.3.2 Neurogenic shock
    - 4.1.3.3 Septic shock
  - 4.1.4. Obstructive shock
- 4.2. Discuss the physiologic effects of shock on the circulatory system
- 4.3. Describe the signs and symptoms of shock (hypoperfusion)
- 4.4. List the three stages of shock (hypoperfusion)
- 4.5. Discuss how to assess and recognize a patient in shock (hypoperfusion)
- 4.6. Describe the management and treatment of shock (hypoperfusion)

##### **Psychomotor Objectives**

None identified

##### **Affective Objectives**

None identified

#### 5. **BODY SUBSTANCE ISOLATION (BSI)**

*Upon completion of this module, the EMT should be able to:*

##### **Cognitive Objectives**

- 5.1. Discuss the importance of body substance isolation (BSI) based on OSHA standards.
- 5.2. Define pathogens
- 5.3. Define routes of exposure
- 5.4. Describe the steps the EMT-IV should take to avoid exposure to pathogens
- 5.5. List the personal protective equipment necessary when initiating venipuncture

##### **Psychomotor Objectives**

None identified

##### **Affective Objectives**

- 5.6. Explain why the practice of body substance isolation (BSI) is important
- 5.7. Explain the need for the EMT-IV serving as an advocate for the use of appropriate protective equipment

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## 6. **VASCULAR ACCESS SITE SELECTION AND PREPARATION**

*Upon completion of this module, the EMT should be able to:*

### **Cognitive Objectives**

- 6.1. Identify peripheral vascular access sites
- 6.2. List commonly used peripheral vascular access sites
- 6.3. List advantages and disadvantages to each site listed
- 6.4. Explain the complications associated with the use of the various vascular access sites
  - 6.4.1. Lower extremity veins for IV initiation
  - 6.4.2. Intraosseous sites
  - 6.4.3. Intramuscular sites
- 6.5. List factors which may affect:
  - 6.5.1. Size and condition of a vein
  - 6.5.2. Access and condition of the IO site
  - 6.5.3. Access and condition of the IM site
- 6.6. Describe methods that may be used to identify vascular sites
- 6.7. Describe methods that may be used to distend a vein for identification and venipuncture
- 6.8. Explain why site selection should be based on patient's clinical presentation
- 6.9. Describe the steps in preparing a site for vascular access
- 6.10. Given the following patient scenarios, describe the site that should be explored first for starting an IV/IO
  - 6.10.1. Cardiac arrest
  - 6.10.2. Major systems trauma
  - 6.10.3. Burns
  - 6.10.4. Pediatric
  - 6.10.5. In extremis
- 6.11. Explain how a venous constricting band might become a source of contamination during venipuncture
- 6.12. List the steps in vascular access site preparation
- 6.13. Define the following terms:
  - 6.13.1. Septic
  - 6.13.2. Aseptic
  - 6.13.3. Extravasation
  - 6.13.4. Venous constricting band
  - 6.13.5. Antecubital space
  - 6.13.6. Medullary cavity
  - 6.13.7. Clean
  - 6.13.8. Sterile

### **Psychomotor Objectives**

- 6.14. Demonstrate the techniques of locating a suitable vascular access site
- 6.15. Demonstrate techniques to distend a vein for venipuncture
- 6.16. Demonstrate proper aseptic technique in vascular access site preparation

### **Affective Objectives**

- 6.17. Explain how a non-critical patient situation might alter vascular access site selection
  - 6.17.1. In extremis or cardiac arrest

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## **7. INTRAVENOUS THERAPY AND PHLEBOTOMY EQUIPMENT**

*Upon completion of this module, the EMT should be able to*

### **Cognitive Objectives**

- 7.1. List the equipment necessary to perform venipuncture technique using an over the needle catheter
  - 7.1.1. Fluid
  - 7.1.2. Administration set
  - 7.1.3. Over the needle catheter selection
  - 7.1.4. Venous constricting bands
  - 7.1.5. Cleaning solution
  - 7.1.6. Securing device
  - 7.1.7. Tape
- 7.2. List the equipment necessary to perform phlebotomy venipuncture
- 7.3. Identify on a mannequin or live model commonly used sites to obtain blood samples using phlebotomy/straight needle venipuncture techniques
- 7.4. List common collection tubes, the additives they contain and the tests performed with the blood collections tubes
  - 7.4.1. Red top
  - 7.4.2. Blue top
  - 7.4.3. Green top
  - 7.4.4. Yellow top
  - 7.4.5. Lavender top
  - 7.4.6. Marbled top

### **Psychomotor Objective**

- 7.5. Demonstrate proper assembly of the equipment for venipuncture and phlebotomy venipuncture

### **Affective Objectives**

None Identified

## **8. INTRAVENOUS THERAPY, VENIPUNCTURE, AND PHLEBOTOMY TECHNIQUE**

*Upon completion of this module, the EMT should be able to:*

### **Cognitive Objectives**

- 8.1. Identify sites that are commonly used to perform venipuncture and phlebotomy venipuncture
- 8.2. Explain common questions to ask patients prior to performing venipuncture and phlebotomy venipuncture
  - 8.2.1. Allergies
  - 8.2.2. Medications
  - 8.2.3. Pertinent medical history
- 8.3. Understand different types and sizes of needles and intravenous catheters
- 8.4. Explain to the patient the process for performing phlebotomy/venipuncture
- 8.5. Describe the proper technique for adult and pediatric phlebotomy/venipuncture
  - 8.5.1. Patient assessments
  - 8.5.2. Proper authority
  - 8.5.3. Patient preparation/consent
  - 8.5.4. Equipment assembly
  - 8.5.5. Site selection
  - 8.5.6. BSI precautions

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- 8.5.7. Site preparation
  - 8.5.8. Venipuncture performance
  - 8.5.9. Site maintenance
  - 8.5.10. Labeling and handling blood tubes
  - 8.5.11. Reassess Patient
  - 8.6. Explain the reasons for contacting on line medical control prior to discontinuing venipuncture
  - 8.7. Explain the importance of describing the signs and symptoms of infection after phlebotomy/venipuncture
  - 8.8. Describe preparing the proper equipment for discontinuing an IV
  - 8.9. Explain the correct method for terminating phlebotomy/venipuncture
  - 8.10. Explain to the patient the procedure for discontinuing phlebotomy/venipuncture

#### **Psychomotor Objectives**

- 8.11. Demonstrate on a mannequin or live model phlebotomy blood draw and intravenous venipuncture technique for an adult and pediatric patients
  - 8.11.1. Patient assessments
  - 8.11.2. Patient consent
  - 8.11.3. Patient preparation
  - 8.11.4. Equipment assembly
  - 8.11.5. Site selection
  - 8.11.6. BSI precautions
  - 8.11.7. Site preparation
  - 8.11.8. Venipuncture performance
  - 8.11.9. Site maintenance
  - 8.11.10. Labeling and handling blood tubes
  - 8.11.11. Reassess patient
- 8.12. Simulate contacting on line medical control prior to removal of an IV
- 8.13. Describe to the patient the signs and symptoms of infection after phlebotomy/venipuncture
- 8.14. Demonstrate preparing the proper equipment for discontinuing an IV
- 8.15. Describe to the patient the procedure for discontinuing an IV
- 8.16. Prepare the equipment for discontinuation of the IV
- 8.17. Demonstrate removing an IV with aseptic technique

#### **Affective Objectives**

- 8.18. Discuss possible anxieties a patient might have regarding phlebotomy/venipuncture and how to alleviate them

### **9. COMBINING PHLEBOTOMY AND INTRAVENOUS THERAPY TECHNIQUES**

*Upon completion of this module, the EMT should be able to:*

#### **Cognitive Objectives**

- 9.1. Describe the reasons for combining blood draws with IV insertion
- 9.2. Describe two types of equipment used to combine phlebotomy and IV insertion:
  - 9.2.1. Syringe
  - 9.2.2. Luer-type adapter
- 9.3. List common problems that may be encountered when combining phlebotomy and IV insertion
  - 9.3.1. Occlusion of the vein
  - 9.3.2. Failure to release the tourniquet
  - 9.3.3. Lack of preparation of equipment prior to insertion

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### **Psychomotor Objectives**

- 9.4. Demonstrate the correct technique for combining phlebotomy and IV insertion technique

### **Affective Objectives**

None Identified

## **10. DRIP RATE CALCULATION**

*Upon completion of this module, the EMT should be able to:*

### **Cognitive Objectives**

- 10.1. Describe how to convert pounds to kilograms
- 10.2. Explain how to convert cc/ml to liters, kg to grams, mg to micrograms
- 10.3. Explain how to calculate the desired amount of medication using patient weight in an acute patient environment
- 10.4. Convert known dose of a medication on hand to desired dose
- 10.5. Calculate to drops (gtts) per minute with macro-, micro-, and blood pump administration sets
- 10.6. Describe how to calculate physician orders to drops (gtts) per minute with macro, micro-, and blood pump administration sets
- 10.7. Describe the conversion process for a known dose of a medication on hand to desired dose
- 10.8. Calculate how to convert cc/ml to liters, kg to grams, mg to micrograms
- 10.9. Calculate amount of medication using patient weight in an acute patient environment
- 10.10. Calculate how to convert pounds to kilogram

### **Psychomotor Objectives**

- 10.11. Demonstrate adjustment of drip rate on macro-, micro-, and blood pump drip sets
- 10.12. Demonstrate how to convert pounds to kilograms

### **Affective Objectives**

None identified

## **11. MAINTENANCE OF VASCULAR THERAPY**

*Upon completion of this module, the EMT should be able to:*

### **Cognitive Objectives**

- 11.1. Describe the need to obtaining vital signs before and after starting an IV/IO
- 11.2. Name critical changes that occur from fluid administration and the associated changes in the patients vital signs
- 11.3. Explain how and where to listen to breath sounds
- 11.4. Identify the breath sounds
  - 11.4.1. Rales
  - 11.4.2. Rhonchi
  - 11.4.3. Wheezes
- 11.5. Absent breath sounds
- 11.6. List indications of fluid overload
- 11.7. Describe ways to confirm the patency of an IV/IO
- 11.8. List reasons why an IV/IO should be immediately discontinued



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- 11.9. Explain how to correct an IV/IO that has stopped flowing

**Psychomotor Objectives**

- 11.10. Demonstrate how to obtain vital signs before and after application of the IV/IO
- 11.11. Recognize critical changes that occur from fluid administration and the associated changes in the patient's vital signs
- 11.12. Demonstrate listening to breath sounds
- 11.13. Demonstrate three ways to confirm the patency of an IV/IO
- 11.14. Demonstrate how to correct the flow of an IV/IO that has stopped flowing

**Affective Objectives**

None identified

**12. INTRAOSEOUS SITE SELECTION AND PREPARATION**

*Upon completion of this module, the EMT should be able to:*

**Cognitive Objectives**

- 12.1. Identify intraosseous site locations
- 12.2. List factors which may affect placement of an intraosseous needle
- 12.3. Explain why site selection should be based on patient's clinical presentation
- 12.4. Compare determination of in extremis vs. non-critical patient condition
- 12.5. Given the following patient scenarios, describe when intraosseous placement would be selected
  - 12.5.1. Cardiac arrest
  - 12.5.2. In extremis
- 12.6. List the steps in intraosseous site preparation
- 12.7. Define the following terms:
  - 12.7.1. Septic
  - 12.7.2. Aseptic
  - 12.7.3. Clean
  - 12.7.4. Sterile

**Psychomotor Objectives**

- 12.8. Demonstrate the techniques of locating the proximal tibial tuberosity
- 12.9. Demonstrate proper aseptic technique in intraosseous site preparation

**Affective Objectives**

- 12.10. Explain how a non-critical patient situation might alter the choice to gain IV access rather than IO access
- 12.11. Explain how a non-critical patient situation might alter IO selection in favor of IV vascular access

**13. INTRAOSEOUS EQUIPMENT**

*Upon completion of this module, the EMT should be able to:*

**Cognitive Objectives**

- 13.1. List the equipment necessary to perform intraosseous placement
- 13.2. Identify on a mannequin or live model the proximal tibial tuberosity

**Psychomotor Objectives**

- 13.3. Select the equipment necessary to perform intraosseous placement
- 13.4. Assemble the equipment needed to perform intraosseous placement

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## Affective Objectives

None identified

### 14. INTRAOSSEOUS TECHNIQUE

*Upon completion of this module, the EMT should be able to:*

#### Cognitive Objectives

- 14.1. Locate the proximal tibial tuberosity
- 14.2. Explain common questions to ask patients prior to placing and intraosseous line
  - 14.2.1. Allergies
  - 14.2.2. Medications
  - 14.2.3. Pertinent medical history
- 14.3. Explain how to properly prepare a patient prior to placing an intraosseous line
- 14.4. Explain to the patient the process for placing an intraosseous line
- 14.5. Describe the importance of obtaining consent from the patient prior placing an intraosseous line
- 14.6. Explain proper site preparation placing an intraosseous line
- 14.7. Describe the proper technique for placing an intraosseous line
- 14.8. Explain the correct method for terminating phlebotomy/venipuncture
- 14.9. Explain how to take care of the site after placing an intraosseous line

#### Psychomotor Objectives

- 14.10. Demonstrate the following intraosseous line placement techniques (human/mannequin)
  - 14.10.1. Patient assessments
  - 14.10.2. Proper preparation
  - 14.10.3. Patient preparation
  - 14.10.4. Equipment preparation
  - 14.10.5. Site selection
  - 14.10.6. BSI precautions
  - 14.10.7. Site preparation
  - 14.10.8. Intraosseous placement
  - 14.10.9. Site maintenance
  - 14.10.10. Reassess

#### Affective Objectives

- 14.11. Discuss possible anxieties a patient might have regarding placement of an intraosseous line and how to alleviate them

### 15. VASCULAR THERAPY IN THE MANAGEMENT OF ADULT CARE

*Upon completion of this module, the EMT should be able to:*

#### Cognitive Objectives

- 15.1. Explain the following aspects of patient care in the adult trauma patient, medical patient and patient in cardiac arrest using a patient case study or scenario
  - 15.1.1. Indications for IV/IO insertion
  - 15.1.2. Contraindications for IV/IO insertion; both patient condition and scene concerns
  - 15.1.3. List appropriate sites for IV/IO therapy for an adult trauma patient
  - 15.1.4. Review differences in site selection and IV catheter size based on patient condition

- 
- 15.1.5. Review differences in site selection and IO needle type and size based on patient condition
  - 15.1.6. State the recommended/desired flow rate
  - 15.1.7. List acceptable techniques for vein distention
  - 15.1.8. Identify possible complications associated with IV insertion
  - 15.1.9. Review problem solving techniques for possible IV/IO complications
  - 15.1.10. Review equipment necessary for IV site phlebotomy, as dictated by case study/scenario
  - 15.1.11. Describe indications of fluid overload as a result of IV/IO therapy
  - 15.1.12. Identify methods of managing a patient with fluid overload as a result of IV/IO therapy

#### **Psychomotor Objectives**

- 15.2. Demonstrate the technique for site selection for IV/IO insertion for an adult patient
- 15.3. Demonstrate the proper aseptic technique for IV/IO procedure
- 15.4. Demonstrate the appropriate phlebotomy techniques
- 15.5. Demonstrate how to appropriately secure an IV/IO
- 15.6. Demonstrate how to regulate volume administration set drip rates

#### **Affective Objectives**

- 15.7. Explain how patient condition may alter IV/IO site selection
- 15.8. Explain how patient condition may alter the size and type of IV/IO catheter and administration set used

### **16. SPECIAL CONSIDERATIONS IN VASCULAR THERAPY IN THE MANAGEMENT OF PEDIATRIC CARE**

*Upon completion of this module, the EMT should be able to:*

#### **Cognitive Objectives**

- 16.1. Explain the following aspects of patient care in the pediatric patient
  - 16.1.1. Indications for IV/IO insertion
  - 16.1.2. Contraindications for IV/IO insertion; both patient condition and scene concerns
  - 16.1.3. List appropriate sites for IV/IO therapy for a pediatric patient
  - 16.1.4. Review differences in site selection and IV catheter size based on patient age, condition, anatomy, etc.
  - 16.1.5. Review differences in site selection and IO needle type, size, and equipment based on patient age, condition, anatomy, etc.
  - 16.1.6. State the recommended/desired flow rate
  - 16.1.7. List acceptable techniques for vein distention in a pediatric patient
  - 16.1.8. Identify possible complications associated with IV/IO insertion
  - 16.1.9. Review problem solving techniques for possible IV/IO complications
  - 16.1.10. Describe indications of fluid overload as a result of IV/IO therapy
  - 16.1.11. Identify methods of managing a patient with fluid overload as a result of IV/IO therapy

#### **Psychomotor Objectives**

- 16.2. Demonstrate the technique for site selection for IV/IO insertion for a pediatric patient
- 16.3. Demonstrate the proper aseptic technique for IV/IO procedure
- 16.4. Demonstrate appropriate IV site phlebotomy techniques
- 16.5. Demonstrate how to appropriately secure an IV/IO
- 16.6. Demonstrate how to regulate volume administration set drip rates

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### **Affective Objectives**

- 16.7. Explain how patient condition may alter IV/IO site selection
- 16.8. Explain how patient condition may alter the size and type of IV/IO catheter and administration set used

## **17. INTRAMUSCULAR INJECTION SITE SELECTION AND PREPARATION**

*Upon completion of this module, the EMT should be able to:*

### **Cognitive Objectives**

- 17.1. Identify intramuscular injection sites
- 17.2. List commonly used intramuscular injection sites
- 17.3. List advantages and disadvantages to each site
- 17.4. List factors which may affect the selection of an intramuscular injection
- 17.5. Explain why site selection should be based on patient's clinical presentation
- 17.6. Describe the steps in preparing a site for intramuscular injection
- 17.7. List the steps in intramuscular injection site preparation

### **Psychomotor Objectives**

- 17.8. Demonstrate the techniques of locating a suitable intramuscular injection site
- 17.9. Demonstrate proper aseptic technique in intramuscular injection site preparation

### **Affective Objectives**

- 17.10. Discuss possible anxieties a patient might have regarding receiving an intramuscular injection and how to alleviate them

## **18. INTRAMUSCULAR INJECTION EQUIPMENT**

*Upon completion of this module, the EMT should be able to:*

### **Cognitive Objectives**

- 18.1. List the equipment necessary to perform intramuscular injection

### **Psychomotor Objectives**

- 18.2. Select the equipment necessary to perform intramuscular injection
- 18.3. Assemble the equipment needed to perform intramuscular injection

### **Affective Objectives**

None identified

## **19. INTRAMUSCULAR INJECTION TECHNIQUE**

*Upon completion of this module, the EMT should be able to:*

### **Cognitive Objectives**

- 19.1. Identify sites that are commonly used to perform intramuscular injection
  - 19.1.1. Explain pertinent questions to ask patients prior to performing intramuscular injection
    - 19.1.1.1 Allergies
    - 19.1.1.2 Medications
    - 19.1.1.3 Pertinent medical history
- 19.2. Describe different types and sizes of needles
- 19.3. Explain how to properly prepare a site prior to intramuscular injection
- 19.4. Describe how to explain to the patient the process for performing intramuscular injection

- 
- 19.5. Describe the importance of obtaining consent from the patient prior to intramuscular injection
  - 19.6. Describe the proper technique for performing intramuscular injection
  - 19.7. Explain how to take care of the site after performing intramuscular injection

**Psychomotor Objectives**

- 19.8. Demonstrate the following intramuscular injection techniques (human/mannequin)
  - 19.8.1. Patient assessments
  - 19.8.2. Proper preparation
  - 19.8.3. Patient preparation
  - 19.8.4. Equipment preparation
  - 19.8.5. Site selection
  - 19.8.6. BSI precautions
  - 19.8.7. Site preparation
  - 19.8.8. Intramuscular injection
  - 19.8.9. Site maintenance
  - 19.8.10. Reassess patient

**Affective Objectives**

None identified

**20. DOCUMENTATION**

*Upon completion of this module, the EMT should be able to:*

**Cognitive Objectives**

- 20.1. Discuss the documentation requirements for performing an invasive procedure
- 20.2. Discuss the documentation requirements for administering a medication
- 20.3. Define special considerations concerning patient refusals
- 20.4. Describe the legal implications associated with the written report
- 20.5. Discuss local considerations

**Psychomotor Objectives**

- 20.6. Compose an accurate patient care report containing the minimum data set for IV initiation, IO placement and medication administration

**Affective Objectives**

- 20.7. Recognize the importance of accurate documentation

**21. BLOOD GLUCOSE TESTING AND ADMINISTRATION OF INTRAVENOUS DEXTROSE**

*Upon completion of this module, the EMT should be able to:*

**Cognitive Objectives**

- 21.1. State the indications for blood glucose testing
- 21.2. State appropriate blood glucose levels in both adult and pediatric patients
- 21.3. Describe patient presentations that indicate the need for the administration of glucose
- 21.4. Differentiate between hypoglycemia and hyperglycemia
- 21.5. State the situations in which physician consultation would be indicated for the administration of Dextrose
- 21.6. Identify the following aspects of dextrose administration in the adult and pediatric patient

- 
- 21.6.1. Therapeutic effects
  - 21.6.2. Indications
  - 21.6.3. Contraindications
  - 21.6.4. Side effects
  - 21.6.5. Complications with administration
  - 21.7. State the local protocols for the administration of dextrose
  - 21.8. Discuss the importance of drawing a tube of blood just prior to the administration of dextrose

**Psychomotor Objectives**

- 21.9. Demonstrate proficiency in performing and interpreting a blood glucose test
- 21.10. Demonstrate the appropriate technique for the administration of dextrose

**Affective Objectives**

- 21.11. Demonstrate nonjudgmental and supportive patient and caregiver interaction

**22. ADMINISTRATION OF IV AND ORAL DISSOLVING TABLETS ONDANSETRON (ZOFRAN)**

*Upon completion of this module, the EMT should be able to:*

**Cognitive Objectives**

- 22.1. Discuss the general factors that may be associated with nausea and vomiting
- 22.2. Describe the patient presentation requiring the possible administration of ondansetron (Zofran)
- 22.3. Identify the following aspects of ondansetron (Zofran) administration in the adult
  - 22.3.1. Therapeutic effects
  - 22.3.2. Indications
  - 22.3.3. Contraindications
  - 22.3.4. Side effects
  - 22.3.5. Complications with administration
- 22.4. State the local protocols for the administration of ondansetron (Zofran)

**Psychomotor Objectives**

- 22.5. Demonstrate the appropriate technique for the administration of intravenous ondansetron (Zofran)
- 22.6. Demonstrate the appropriate technique for the administration of ODT ondansetron (Zofran)

**Affective Objectives**

- 22.7. Demonstrate nonjudgmental and supportive patient and caregiver interaction

**23. ADMINISTRATION OF INTRAMUSCULAR EPINEPHRINE 1:1,000**

*Upon completion of this module, the EMT should be able to:*

**Cognitive Objectives**

- 23.1. Discuss the general factors that may be associated with anaphylactic shock
- 23.2. Describe the patient presentation requiring the possible administration of epinephrine 1:1,000
- 23.3. Identify the following aspects of epinephrine 1:1,000 administration in the adult and pediatric patient
  - 23.3.1. Therapeutic effects
  - 23.3.2. Indications

- 
- 23.3.3. Contraindications
  - 23.3.4. Side effects
  - 23.3.5. Complications with administration
  - 23.4. State the situations in which physician consultation would be indicated for the administration of albuterol
  - 23.5. State the local protocols for the administration of epinephrine 1:1,000

**Psychomotor Objectives**

- 23.6. Demonstrate the appropriate technique for the administration of intramuscular epinephrine 1:1,000
- 23.7. Select the appropriate prepackage of epinephrine

**Affective Objectives**

- 23.8. Demonstrate nonjudgmental and supportive patient and caregiver interaction

**24. ADMINISTRATION OF INTRAVENOUS AND ATOMIZED INTRANASAL NALOXONE (NARCAN)**

*Upon completion of this module, the EMT should be able to:*

**Cognitive Objectives**

- 24.1. Discuss the general factors that may cause an alteration in a patient's behavior
- 24.2. Describe the patient presentation requiring the possible administration of Narcan
- 24.3. Discuss the advantages and disadvantages of various routes of Narcan administration (i.e. intravenous vs. intranasal)
- 24.4. Discuss the importance of patient and provider safety prior to and after administration of Narcan
- 24.5. Identify the following aspects of Narcan administration in the adult and pediatric patient
  - 24.5.1. Therapeutic effects
  - 24.5.2. Indications
  - 24.5.3. Contraindications
  - 24.5.4. Side effects
  - 24.5.5. Complications with administration
- 24.6. State the local protocols for the administration of Narcan

**Psychomotor Objectives**

- 24.7. Demonstrate the appropriate technique for the administration of intravenous Narcan
- 24.8. Demonstrate the appropriate technique for the administration of atomized intranasal Narcan

**Affective Objectives**

- 24.9. Demonstrate nonjudgmental and supportive patient and caregiver interaction

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## 25. ADMINISTRATION OF NEBULIZED ALBUTEROL

1. *This module of may be optional for some students.*
2. *Students who have successfully completed this material as a portion of their EMT initial curriculum are not required to repeat this information.*
3. *If the student has not covered this information and has not demonstrated both cognitive and psychomotor competency, this information should be covered.*

*Upon completion of this module, the EMT should be able to:*

### **Cognitive Objectives**

- 23.1 List various caused of respiratory distress
- 23.2 Describe the signs and symptoms of a patient in respiratory distress
- 23.3 Describe the patient presentation requiring the administration of albuterol
  - 23.3.1 Identify the following aspects of albuterol administration in the adult and pediatric patient Therapeutic effects
  - 23.3.2 Indications
  - 23.3.3 Contraindications
  - 23.3.4 Side effects
  - 23.3.5 Complications with administration
- 23.4 State the situations in which physician consultation would be indicated for the administration of albuterol
- 23.5 State the local protocols for the administration of albuterol

### **Psychomotor Objectives**

- 23.6 Demonstrate the appropriate technique for the administration of nebulized albuterol

### **Affective Objectives**

- 23.7 Recognize the importance of patient coaching and calming techniques
- 23.8 Demonstrate nonjudgmental and supportive patient and caregiver interaction



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IV Therapy and Medication Administration Skill Sheet  
**Phlebotomy (Straight Needle Blood Draw)**

Student \_\_\_\_\_ Evaluator \_\_\_\_\_

Date \_\_\_\_\_ Start time \_\_\_\_\_ End Time \_\_\_\_\_

	Possible Points	Points Awarded
Takes BSI precautions	1	
Explains procedure to patient	1	
Identifies the need for drawing a blood sample	1	
Checks and prepares equipment	1	
Applies tourniquet	1	
Palpates suitable vein	1	
Cleanses site appropriately	1	
Performs venipuncture: (1 pt. each) <ul style="list-style-type: none"> <li>• Correct insertion angle/direction</li> <li>• Fills blood tubes as indicated</li> <li>• Gently inverts tubes with additives repeatedly</li> <li>• Removes tourniquet and needle</li> </ul>	4	
Properly dresses puncture site	1	
Manages blood tube properly: (1 pt. each) <ul style="list-style-type: none"> <li>• Places tubes into small biohazard bag</li> <li>• Labels the bag with patient's name</li> <li>• Secures bag with patient</li> </ul>	3	
Documents the procedure	1	
Disposes of needle in proper container	1	
TOTAL	17	

Critical Criteria

- \_\_\_\_\_ Failure to take appropriate body substance precautions
- \_\_\_\_\_ Exhibits improper or dangerous technique
- \_\_\_\_\_ Contaminates equipment or site without correction
- \_\_\_\_\_ Failure to dispose of needle in an appropriate container

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IV Therapy and Medication Administration Skill Sheet  
**Peripheral Intravenous Therapy**

Student \_\_\_\_\_ Evaluator \_\_\_\_\_

Date \_\_\_\_\_ Start time \_\_\_\_\_ End Time \_\_\_\_\_

	Possible Points	Points Awarded
Takes or verbalizes body substance isolation precautions	1	
Identifies the need for an IV	1	
Identifies the need for blood samples	1	
Explains the procedure(s) to the patient	1	
Checks selected IV fluid for: (1 pt. each) <ul style="list-style-type: none"><li>• Proper fluid</li><li>• Clarity</li><li>• Expiration date</li></ul>	3	
Selects appropriate catheter	1	
Selects proper administration set	1	
Connects IV tubing to the IV bag	1	
Prepares administration set (fills drip chamber and flushes tubing)	1	
Cuts or tears tape (at any time prior to venipuncture)	1	
Applies tourniquet	1	
Palpates suitable vein	1	
Cleanses site appropriately	1	
Performs venipuncture: (1 pt. each) <ul style="list-style-type: none"><li>• Correct insertion angle/direction</li><li>• Notes or verbalizes flashback</li><li>• Advances the catheter</li><li>• Occludes vein proximal to the end of the catheter</li><li>• Removes stylet and properly disposes of needle</li></ul>	5	
Releases tourniquet	1	
Connects IV tubing and runs for brief period to assure patent line	1	

Examines site for inflammation and/or infiltration	1	
Secures catheter and tubing (tapes securely or applies a transparent dressing, taking care to not block the IV tubing connection.	1	
Adjusts flow rate appropriately	1	
Disposes of bio hazards in proper container	1	
Demonstrates correct technique in stopping IV therapy and the removal of IV catheter.	3	
TOTAL	29	

#### Critical Criteria

- \_\_\_\_\_ Did not take body substance precautions
- \_\_\_\_\_ Contaminates equipment or site without appropriately correcting situation
- \_\_\_\_\_ Exhibits improper or dangerous technique
- \_\_\_\_\_ Failure to successfully establish IV within 3 attempts
- \_\_\_\_\_ Failure to dispose/verbalize disposal of needle in proper container

IV Therapy and Medication Administration Skill Sheet  
**Peripheral Intravenous Therapy with Blood Draw**

Student \_\_\_\_\_ Evaluator \_\_\_\_\_

Date \_\_\_\_\_ Start time \_\_\_\_\_ End Time \_\_\_\_\_

	Possible Points	Points Awarded
Takes BSI precautions	1	
Identifies the need for an IV	1	
Identifies the need for blood samples	1	
Explains the procedure(s) to the patient	1	
Checks selected IV fluid for: (1 pt. each) <ul style="list-style-type: none"> <li>• Proper fluid</li> <li>• Clarity</li> <li>• Expiration date</li> </ul>	3	
Selects appropriate catheter	1	
Selects proper administration set	1	
Connects IV tubing to the IV bag	1	
Prepares administration set (fills drip chamber and flushes tubing)	1	
Cuts or tears tape (at any time prior to venipuncture)	1	
Applies tourniquet	1	
Palpates suitable vein	1	
Cleanses site appropriately	1	
Performs venipuncture: (1 pt. each) <ul style="list-style-type: none"> <li>• Correct angle/direction</li> <li>• Notes or verbalizes flashback</li> <li>• Advances the catheter</li> <li>• Tamponades vein proximal to the end of the catheter</li> <li>• Removes stylet and properly disposes of needle</li> </ul>	5	
Performs blood draw: (1 pt. each) <ul style="list-style-type: none"> <li>• Attaches vacutainer barrel to the IV catheter via Luer-type adapter</li> <li>• Fills blood tubes as indicated</li> <li>• Gently inverts tubes with additives repeatedly</li> <li>• Connects IV tubing to the IV catheter</li> </ul>	4	
Releases tourniquet	1	

Attaches IV and runs for brief period to assure patent line	1	
Examines site for inflammation and/or infiltration	1	
Secures catheter and tubing (tapes securely or applies a transparent dressing) taking care to not block the IV tubing connection.	1	
Adjusts flow rate appropriately	1	
Disposes bio hazards in proper container	1	
Demonstrates correct technique in stopping IV therapy and the removal of IV catheter.	3	
TOTAL	33	

#### Critical Criteria

- \_\_\_\_\_ Did not take body substance precautions
- \_\_\_\_\_ Contaminates equipment or site without appropriately correcting situation
- \_\_\_\_\_ Exhibits improper or dangerous technique
- \_\_\_\_\_ Failure to successfully establish IV within 3 attempts
- \_\_\_\_\_ Failure to dispose/verbalize disposal of needle in proper container

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IV Therapy and Medication Administration Skill Sheet  
**Blood Glucose Testing and Diagnostic Interpretation**

Student \_\_\_\_\_ Evaluator \_\_\_\_\_

Date \_\_\_\_\_ Start time \_\_\_\_\_ End Time \_\_\_\_\_

	Possible Points	Points Awarded
Takes BSI precautions	1	
Identifies indications for obtaining a blood glucose level: (1 pt. each) <ul style="list-style-type: none"> <li>Altered level of consciousness</li> <li>Suspected diabetic</li> <li>Non-traumatic seizures</li> <li>Unconscious patient of unknown etiology</li> </ul>	4	
Identifies the normal parameters for blood glucose	1	
Checks equipment: (1 pt. each) <ul style="list-style-type: none"> <li>Glucometer</li> <li>Test strip</li> <li>Lancet or spring-loaded puncture device</li> <li>Alcohol prep(s)</li> </ul>	4	
Explains procedure to patient	1	
Turns on power to machine	1	
Preps fingertip with alcohol prep	1	
Punctures the prepped site with lancet/puncture device, drawing capillary blood	1	
Transfers a blood sample to test strip	1	
Dresses puncture site	1	
Records reading from monitor and documents is appropriately	1	
Disposes/verbalizes disposal of lancet/puncture device in appropriate container	1	
TOTAL	18	

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Critical Criteria

- \_\_\_\_\_ Did not take body substance precautions
- \_\_\_\_\_ Failed to identify 2 or more indications for blood glucose testing
- \_\_\_\_\_ Failed to identify normal blood glucose parameters
- \_\_\_\_\_ Failed to dispose of lancet/ puncture in an appropriate container

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IV Therapy and Medication Administration Skill Sheet

**Intravenous Dextrose Administration**

Student \_\_\_\_\_ Evaluator \_\_\_\_\_

Date \_\_\_\_\_ Start time \_\_\_\_\_ End Time \_\_\_\_\_

	Possible Points	Points Awarded
Takes BSI precautions	1	
Completes assessment(s) and determines patient needs medication	1	
Calls medical direction for order or confirms standing order	1	
Lists indications for intravenous dextrose administration: (1 pt. each) <ul style="list-style-type: none"> <li>Clinical condition suggests hypoglycemia</li> <li>Glucometer reading</li> </ul>	2	
Checks for known allergies, contraindications, or incompatibilities: (1 pt. each) <ul style="list-style-type: none"> <li>Extravasations and tissue necrosis</li> <li>Requires a pre-administration blood sample to be drawn</li> </ul>	2	
Checks medication to determine: (1 pt. each) <ul style="list-style-type: none"> <li>Expiration date</li> <li>Concentration</li> <li>Correctness</li> <li>Clarity</li> </ul>	4	
Verbalizes the appropriate dosage for the medication	1	
Properly administers medication: (1 pt. each) <ul style="list-style-type: none"> <li>Draws up required dosage</li> <li>Instructs patient about the medication effects</li> <li>Administers medication in IV port closest to patient-slow push</li> <li>Periodically flows IV to ensure patency of line</li> <li>Follows medication with a saline bolus/flush</li> </ul>	5	
Verbalizes the need for transport	1	
Verbalizes ongoing assessment including observing patient for desired/ adverse side effects	1	
Verbalizes proper documentation of medication administration	1	
<b>TOTAL</b>	<b>20</b>	



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Critical Criteria

- \_\_\_\_\_ Did not take body substance precautions
- \_\_\_\_\_ Did not complete, or verbalize completion of, patient assessment
- \_\_\_\_\_ Contaminates equipment or site without appropriately correcting the situation
- \_\_\_\_\_ Administered, or attempted to administer, a medication to a patient with one or more contraindications for use
- \_\_\_\_\_ Administers improper medication dosage (wrong drug, incorrect amount, or administers the drug incorrectly)
- \_\_\_\_\_ Recaps needle or fails to dispose/verbalize disposal of syringe and other material properly
- \_\_\_\_\_ Uses or orders a dangerous or inappropriate intervention

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IV Therapy and Medication Administration Skill Sheet

**Intravenous Narcan Administration**

Student \_\_\_\_\_ Evaluator \_\_\_\_\_

Date \_\_\_\_\_ Start time \_\_\_\_\_ End Time \_\_\_\_\_

	Possible Points	Points Awarded
Takes BSI precautions	1	
Completes assessment(s) and determines patient needs medication	1	
Calls medical direction for order or confirms standing order	1	
Lists indications for intravenous Narcan administration: (1 pt. each) <ul style="list-style-type: none"> <li>• Respiratory depression induced by narcotics</li> <li>• Altered mental status unknown etiology</li> <li>• Non-traumatic seizures unknown etiology</li> </ul>	3	
Checks for known allergies, contraindications, or incompatibilities: (1 pt. each) <ul style="list-style-type: none"> <li>• Hypersensitivity</li> <li>• Narcotic withdrawal</li> </ul>	2	
Checks medication to determine: (1 pt. each) <ul style="list-style-type: none"> <li>• Expiration date</li> <li>• Concentration</li> <li>• Correct medication</li> <li>• Clarity</li> </ul>	4	
Verbalizes the appropriate dosage for the medication (adult and pediatric)	2	
Verbalizes consideration of restraining patient prior to medication administration	1	
Properly administers medication: (1 pt. each) <ul style="list-style-type: none"> <li>• Draws up required dosage</li> <li>• Instructs patient about the medication effects</li> <li>• Administers medication in IV port closest to patient-slow push</li> <li>• Periodically flows IV to ensure patency of line</li> <li>• Follows medication with a saline bolus/flush</li> </ul>	5	
Verbalizes the need for transport	1	
Verbalizes ongoing assessment including observing patient for desired/ adverse side effects	1	
Verbalizes proper documentation of medication administration	1	
<b>TOTAL</b>	<b>21</b>	

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Critical Criteria

- \_\_\_\_\_ Did not take body substance precautions
- \_\_\_\_\_ Did not complete, or verbalize completion of, patient assessment
- \_\_\_\_\_ Contaminates equipment or site without appropriately correcting the situation
- \_\_\_\_\_ Administered, or attempted to administer, a medication to a patient with one or more contraindications for use
- \_\_\_\_\_ Administers improper medication dosage (wrong drug, incorrect amount, or administers the drug incorrectly)
- \_\_\_\_\_ Recaps needle or fails to dispose/verbalize disposal of syringe and other material properly
- \_\_\_\_\_ Uses or orders a dangerous or inappropriate intervention

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IV Therapy and Medication Administration Skill Sheet  
**Atomized Intranasal Naloxone (Narcan) Administration**

Student \_\_\_\_\_ Evaluator \_\_\_\_\_

Date \_\_\_\_\_ Start time \_\_\_\_\_ End Time \_\_\_\_\_

	Possible Points	Points Awarded
Takes BSI precautions	1	
Completes assessment(s) and determines patient needs medication	1	
Calls medical direction for order or confirms standing order	1	
Lists indications for intranasal Narcan administration: (1 pt. each) <ul style="list-style-type: none"> <li>Respiratory depression induced by narcotics</li> <li>Altered mental status unknown etiology</li> <li>Non-traumatic seizures unknown etiology</li> </ul>	3	
Checks for known allergies, contraindications, or incompatibilities: (1 pt. each) <ul style="list-style-type: none"> <li>Hypersensitivity</li> <li>Narcotic withdrawal</li> </ul>	2	
Checks medication to determine: (1 pt. each) <ul style="list-style-type: none"> <li>Expiration date</li> <li>Concentration</li> <li>Correct medication</li> <li>Clarity</li> </ul>	4	
Verbalizes the appropriate dosage for the medication (adult and pediatric)	2	
Verbalizes consideration of restraining patient prior to medication administration	1	
Properly administers medication: (1 pt. each) <ul style="list-style-type: none"> <li>Draws up required dosage</li> <li>Instructs patient about the medication effects</li> <li>Expels air from the syringe</li> <li>Assembles mucosal atomization device (MAD) to syringe securely</li> <li>Briskly compresses the syringe plunger</li> </ul>	5	
Verbalizes the need for transport	1	

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Verbalizes ongoing assessment including observing patient for desired/ adverse side effects	1	
Voices proper documentation of medication administration	1	
TOTAL	23	

#### Critical Criteria

- \_\_\_\_\_ Did not take body substance precautions
- \_\_\_\_\_ Did not complete, or verbalize completion of, patient assessment
- \_\_\_\_\_ Contaminates equipment or site without appropriately correcting the situation
- \_\_\_\_\_ Administered, or attempted to administer, a medication to a patient with one or more contraindications for use
- \_\_\_\_\_ Administers improper medication dosage (wrong drug, incorrect amount, or administers the drug incorrectly)
- \_\_\_\_\_ Recaps needle or fails to dispose/verbalize disposal of syringe and other material properly
- \_\_\_\_\_ Uses or orders a dangerous or inappropriate intervention

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IV Therapy and Medication Administration Skill Sheet

**Nebulized Albuterol Administration**

Student \_\_\_\_\_ Evaluator \_\_\_\_\_

Date \_\_\_\_\_ Start time \_\_\_\_\_ End Time \_\_\_\_\_

	Possible Points	Points Awarded
Takes BSI precautions	1	
Completes assessment(s) and determines patient needs medication	1	
Calls medical direction for order	1	
Lists indications for nebulized albuterol administration <ul style="list-style-type: none"> <li>Bronchospasm due to reversible obstructive airway disease (asthma, bronchitis, acute bronchospasm)</li> </ul>	2	
Checks for known allergies, contraindications or incompatibilities: (1 pt. each) <ul style="list-style-type: none"> <li>Hypersensitivity</li> <li>Cardiac dysrhythmias associated with tachycardia</li> </ul>	2	
Checks medication to determine: (1 pt. each) <ul style="list-style-type: none"> <li>Expiration date</li> <li>Concentration</li> <li>Correct medication</li> <li>Clarity</li> </ul>	4	
Verbalizes the appropriate dosage for the medication	1	
Properly administers medication: <ul style="list-style-type: none"> <li>Instructs patient about the medication effects (1 pt.)</li> <li>Assembles the nebulizer and connects to oxygen (2 pts.)</li> <li>Provides appropriate oxygen flow (1 pt.)</li> <li>Assists patient with use of the nebulizer (1 pt.)</li> </ul>	5	
Verbalizes the need for transport	1	
Verbalizes ongoing assessment including observing patient for desired/ adverse side effects	1	
Voices proper documentation of medication administration	1	
<b>TOTAL</b>	20	

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Critical Criteria

- \_\_\_\_\_ Did not take body substance precautions
- \_\_\_\_\_ Did not complete, or verbalize completion of, patient assessment
- \_\_\_\_\_ Contaminates equipment or site without appropriately correcting the situation
- \_\_\_\_\_ Administered medication without physician order (verbal)
- \_\_\_\_\_ Administered, or attempted to administer, a medication to a patient with one or more contraindications for use
- \_\_\_\_\_ Administers improper medication dosage (wrong drug, incorrect amount, or administers the drug incorrectly)
- \_\_\_\_\_ Uses or orders a dangerous or inappropriate intervention

## IV Therapy and Medication Administration Skill Sheet

### Intraosseous Infusion – Skill Lab

Student \_\_\_\_\_ Evaluator \_\_\_\_\_

Date \_\_\_\_\_ Start time \_\_\_\_\_ End Time \_\_\_\_\_

	Possible Points	Points Awarded
Clearly explains procedure to patient	1	
Selects, checks, and assembles equipment: <ul style="list-style-type: none"> <li>• IO Solution</li> <li>• Administration set</li> <li>• IO needle and insertion device</li> <li>• Sharps container</li> <li>• Antiseptic swabs, gauze pads, bulky dressing, syringe, etc.</li> </ul>	5	
Checks solution for: <ul style="list-style-type: none"> <li>• Proper solution</li> <li>• Clarity or particulate matter</li> <li>• Expiration date</li> <li>• Protective covers on tail ports</li> </ul>	4	
Removes protective cover on drip chamber while maintaining sterility	1	
Removes protective cover on IO bag tail port while maintaining sterility	1	
Inserts IV tubing spike into solution bag tail port until inner seal is punctured while maintaining sterility	1	
Turns IO bag upright	1	
Squeezes drip chamber and fills half-way	1	
Turns on by sliding flow clamp and bleeds line of all air while maintaining sterility	1	
Shuts flow off after assuring that all large air bubbles have been purged	1	
<b>Performs intraosseous puncture</b>		
Tears sufficient tape to secure IO	1	
Opens antiseptic swabs, gauze pads	1	
Takes appropriate anatomical site for IO puncture	1	
Identifies appropriate anatomical site for IO puncture		
Cleanses site, starting from the center and moving outward in a circular motion	1	
Prepares IO needle and insertion device while maintaining sterility	1	
Stabilizes the site in a safe matter (if using the tibia, does not hold the leg in palm of hand and perform IO puncture directly above hand)	1	
Inserts needle at proper angle and direction (away from joint, epiphyseal plate, etc.)	1	



Recognizes that needle has entered intramedullary canal (feels “pop” or notices less resistance)	1	
Removes stylet and immediately disposes in proper container	1	
Attaches administration set to IO needle	1	
Slowly injects solution while observing for signs of infiltration or aspirates to verify proper needle placement	1	
Adjusts flow rate as appropriate	1	
Secures needle and supports with bulky dressing	1	
Assesses patient for therapeutic response or signs of untoward reactions	1	
<b>TOTAL</b>	<b>31</b>	

### Critical Criteria

- \_\_\_\_\_ Failure to take or verbalize appropriate PPE precautions
- \_\_\_\_\_ Failure dispose of blood-contaminated sharps **immediately at the point of use**
- \_\_\_\_\_ Contaminates equipment or site without appropriately correcting the situation
- \_\_\_\_\_ Performs any improper technique resulting in the potential for air embolism
- \_\_\_\_\_ Failure to assure correct needle placement
- \_\_\_\_\_ Performs IO puncture in an unacceptable or unsafe manner (improper site, incorrect needle angle, holds leg in palm and performs IO puncture directly above hand, etc.)
- \_\_\_\_\_ Failure to manage the patient as a competent EMT
- \_\_\_\_\_ Exhibits unacceptable affect with patient or other personnel
- \_\_\_\_\_ Uses or orders a dangerous or inappropriate intervention

IV Therapy and Medication Administration Skill Sheet  
**Intramuscular Medication Administration – Skill Lab**

Student \_\_\_\_\_ Evaluator \_\_\_\_\_

Date \_\_\_\_\_ Start time \_\_\_\_\_ End Time \_\_\_\_\_

	Possible Points	Points Awarded
Asks patient for known allergies	1	
Clearly explains procedure to patient	1	
Selects, checks, and assembles equipment: <ul style="list-style-type: none"> <li>• Medication</li> <li>• Appropriate syringe and needle(s)</li> <li>• Sharps container</li> <li>• Alcohol swabs</li> <li>• Adhesive bandage or sterile gauze dressing and tape</li> </ul>	5	
Selects correct medication by identifying: <ul style="list-style-type: none"> <li>• Right patient</li> <li>• Right medication</li> <li>• Right dosage/concentration</li> <li>• Right time</li> <li>• Right route</li> </ul>	5	
Checks medication for: <ul style="list-style-type: none"> <li>• Clarity</li> <li>• Expiration date</li> </ul>	2	
Assembles syringe and needle	1	
Draws appropriate amount of medication into syringe and dispels air while maintaining sterility	1	
Reconfirms medication with partner	1	
Takes or verbalizes appropriate PPE precautions	1	
Identifies and cleanses appropriate injection site	1	
Pinches/stretches skin, warns patient and inserts needle at proper angle while maintaining sterility	1	
Aspirates syringe while observing for blood return before injecting IM medication	1	
Administers correct dose at proper push rate	1	
Removes needle and disposes/verbalizes proper disposal of syringe and needle in proper container	1	
Applies direct pressure to site	1	
Covers puncture site	1	

Verbalizes need to observe patient for desired effect and adverse side effects	1	
<b>TOTAL</b>	26	

### Critical Criteria

- \_\_\_\_\_ Failure to take or verbalize appropriate PPE precautions
- \_\_\_\_\_ Failure to identify acceptable injection site
- \_\_\_\_\_ Contaminates equipment or site without appropriately correcting the situation
- \_\_\_\_\_ Failure to adequately dispel air resulting in the potential for air embolism
- \_\_\_\_\_ Failure to aspirate for blood prior to injecting IM medication
- \_\_\_\_\_ Injects improper medication or dosage (wrong medication, incorrect amount, or administers at an inappropriate rate)
- \_\_\_\_\_ Recaps needle or fails to dispose/verbalize disposal of syringe and needle in proper container
- \_\_\_\_\_ Failure to observe the patient for desired effect and adverse side effects after administering medication
- \_\_\_\_\_ Failure to manage the patient as a competent EMT
- \_\_\_\_\_ Exhibits unacceptable affect with patient or other personnel
- \_\_\_\_\_ Uses or orders a dangerous or inappropriate intervention