Intravenous / Intraosseous Therapy
And Medication Administration
Course Curriculum

For the Colorado Emergency Medical Technician (EMT)

Revised January 2018

Colorado Department of Public Health and Environment
Emergency Medical and Trauma Services
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1. Peripheral Intravenous Therapy
2. Intramuscular Injection
3. Intraosseous Needle Placement
4. Peripheral Intravenous Therapy with Blood Draw
5. Glucose Testing Diagnostic Interpretation – Blood Glucose
6. Dextrose Administration – Intravenous
7. Ondansetron – Intravenous
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9. Narcan Administration – Intravenous
10. Narcan Administration – Atomized
11. Epinephrine 1:1,000 – Intramuscular injection
12. Albuterol – Nebulized (optional)
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.
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.
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
## IV THERAPY AND MEDICATION ADMINISTRATION COURSE OUTLINE

<table>
<thead>
<tr>
<th>MODULES (with suggested time breakdown)</th>
<th>RECOMMENDED MODULE TIMES</th>
<th>RECOMMENDED EMT CE HOURS</th>
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<tbody>
<tr>
<td>1. Course Introduction</td>
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<tr>
<td>Didactic 0:30</td>
<td>0:30</td>
<td>Preparatory - 0.5 CEU</td>
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<td>Lab 0:00</td>
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<td>2. Roles, Responsibilities, and Legal Considerations</td>
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<td>Lab 0:00</td>
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<tr>
<td>3. Cellular and Vascular Anatomy and Physiology</td>
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<td>Lab 0:00</td>
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<tr>
<td>4. Shock Principles</td>
<td>1:30</td>
<td>Medical - 1.5 CEU or Trauma - 1.5 CEU</td>
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<td>Didactic 1:30</td>
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<td>Lab 0:00</td>
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<td>5. Body Substance Isolation</td>
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<td>6. Vascular Access Site Selection and Preparation</td>
<td>1:30</td>
<td>Assessment - 1.5 CEU</td>
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<td>7. Intravenous Therapy and Phlebotomy Equipment</td>
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<td>Lab 0:30</td>
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<tr>
<td>8. Intravenous Therapy, Venipuncture, and Phlebotomy Technique</td>
<td>1:30</td>
<td>Medical - 1.5 CEU or Trauma - 1.5 CEU</td>
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<td>Didactic 0:30</td>
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<td>Lab 1:00</td>
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<td>9. Combining Phlebotomy and Intravenous Therapy Techniques</td>
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<td>Medical - 1.0 CEU or Trauma - 1.0 CEU</td>
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<td>10. Drip Rate Calculation</td>
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<td>Medical - 2.00 CEU</td>
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<td>11. Maintenance of Vascular Therapy</td>
<td>1:00</td>
<td>Medical - 1.0 CEU</td>
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<td>12. Intraosseous Injection Site Selection and Preparation</td>
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<td>Assessment - 1.5 CEU</td>
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<tr>
<td>13. Intraosseous Equipment</td>
<td>0:45</td>
<td>Elective - 0.75 CEU</td>
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<td>Didactic 0:15</td>
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<tr>
<td>14. Intraosseous Technique</td>
<td>1:30</td>
<td>Medical - 1.5 CEU or Trauma - 1.5 CEU</td>
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<td>Didactic 0:30</td>
<td>Lab 1:00</td>
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<td>15. Vascular Therapy in the Management of Adult Care</td>
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<td>Intramuscular Injection Equipment</td>
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<td>Blood Glucose Testing and Administration of Intravenous Dextrose</td>
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<td>Administration of Ondansetron (Zofran) – Intravenous and ODT</td>
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<td>Administration of Epinephrine 1:1,000 – Intramuscular</td>
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<td>Administration of Naloxone (Narcan), Intravenous and Atomized – Optional</td>
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<td>MODULES (with suggested time breakdown)</td>
<td>RECOMMENDED MODULE TIMES</td>
<td>RECOMMENDED EMT CE HOURS</td>
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<td><strong>25. Administration of Nebulized Albuterol (Proventil) – Optional</strong></td>
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<td>Didactic 0:30</td>
<td>1.00</td>
<td>Assessment - 1.0 or Medical - 1.0 CEU</td>
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<td><strong>TOTAL CLASSROOM HOURS</strong></td>
<td>28.25 hours</td>
<td>Preparatory - 2.5 Assessment - 6.0 Pediatrics - 1.5 Medical - 18.5 Trauma - 8.5 Elective - 2.25</td>
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<td><strong>26. Cognitive Testing</strong></td>
<td>Varies</td>
<td>(A minimum of a final, cumulative written exam is required)</td>
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<td><strong>27. Psychomotor Skills Testing</strong></td>
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<td><strong>28. Clinical Requirements</strong></td>
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<td><strong>29. Clinical Experience</strong></td>
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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.
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 solutions  

3.5. Explain the effects of infusion of isotonic, hypertonic, and hypotonic IV solutions upon the intracellular, intravascular, and interstitial spaces  

3.6. 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  

3.7. List the components of blood and their function  

3.8. 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  

3.9. Define and explain the significance of hemoglobin and hematocrit  

3.10. Describe the blood clotting process  

3.11. State at least three factors which may alter the body’s ability to form clots  

**Psychomotor Objectives**  
None identified  

**Affective Objectives**  
None identified
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
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
7. **INTRAVENTOUS 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. **INTRAVENTOUS 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
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 online 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 online 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 INTRAVENTOUS 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
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
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. INTRAOSSEOUS 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. INTRAOSSEOUS 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
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
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 are 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 are 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
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 causes 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
   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
**IV Therapy and Medication Administration Skill Sheet**

**Phlebotomy (Straight Needle Blood Draw)**

<table>
<thead>
<tr>
<th>Task</th>
<th>Possible Points</th>
<th>Points Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Takes BSI precautions</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Explains procedure to patient</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Identifies the need for drawing a blood sample</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Checks and prepares equipment</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Applies tourniquet</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Palpates suitable vein</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Cleanses site appropriately</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Performs venipuncture: (1 pt. each)</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>• Correct insertion angle/direction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Fills blood tubes as indicated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Gently inverts tubes with additives repeatedly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Removes tourniquet and needle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Properly dresses puncture site</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Manages blood tube properly: (1 pt. each)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>• Places tubes into small biohazard bag</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Labels the bag with patient’s name</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Secures bag with patient</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Documents the procedure</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Disposes of needle in proper container</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td>17</td>
</tr>
</tbody>
</table>

**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
### IV Therapy and Medication Administration Skill Sheet

**Peripheral Intravenous Therapy**

<table>
<thead>
<tr>
<th>Description</th>
<th>Possible Points</th>
<th>Points Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Takes or verbalizes body substance isolation precautions</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Identifies the need for an IV</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Identifies the need for blood samples</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Explains the procedure(s) to the patient</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Checks selected IV fluid for: (1 pt. each)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>• Proper fluid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Clarity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Expiration date</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Selects appropriate catheter</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Selects proper administration set</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Connects IV tubing to the IV bag</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Prepares administration set (fills drip chamber and flushes tubing)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Cuts or tears tape (at any time prior to venipuncture)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Applies tourniquet</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Palpates suitable vein</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Cleanses site appropriately</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Performs venipuncture: (1 pt. each)</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>• Correct insertion angle/direction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Notes or verbalizes flashback</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Advances the catheter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Occludes vein proximal to the end of the catheter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Removes stylet and properly disposes of needle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Releases tourniquet</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Connects IV tubing and runs for brief period to assure patent line</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Task</td>
<td>Score</td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>Examines site for inflammation and/or infiltration</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Secures catheter and tubing (tapes securely or applies a transparent dressing, taking care to not block the IV tubing connection.)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Adjusts flow rate appropriately</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Disposes of bio hazards in proper container</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Demonstrates correct technique in stopping IV therapy and the removal of IV catheter.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>29</strong></td>
<td></td>
</tr>
</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>Task</th>
<th>Possible Points</th>
<th>Points Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Takes BSI precautions</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Identifies the need for an IV</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Identifies the need for blood samples</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Explains the procedure(s) to the patient</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Checks selected IV fluid for: (1 pt. each)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>- Proper fluid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Clarity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Expiration date</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Selects appropriate catheter</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Selects proper administration set</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Connects IV tubing to the IV bag</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Prepares administration set (fills drip chamber and flushestubing)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Cuts or tears tape (at any time prior to venipuncture)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Applies tourniquet</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Palpates suitable vein</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Cleanses site appropriately</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Performs venipuncture: (1 pt. each)</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>- Correct angle/direction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Notes or verbalizes flashback</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Advances the catheter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Tamponades vein proximal to the end of the catheter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Removes stylet and properly disposes of needle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performs blood draw: (1 pt. each)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>- Attaches vacutainer barrel to the IV catheter via Luer-type adapter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Fills blood tubes as indicated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Gently inverts tubes with additives repeatedly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Connects IV tubing to the IV catheter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Releases tourniquet</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Task</td>
<td>Score</td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>Attaches IV and runs for brief period to assure patent line</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Examines site for inflammation and/or infiltration</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Secures catheter and tubing (tapes securely or applies a transparent dressing) taking care to not block the IV tubing connection.</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Adjusts flow rate appropriately</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Disposes bio hazards in proper container</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Demonstrates correct technique in stopping IV therapy and the removal of IV catheter.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>33</strong></td>
<td></td>
</tr>
</tbody>
</table>

**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
# Blood Glucose Testing and Diagnostic Interpretation

**Student** _______________________________ **Evaluator** _______________________________

**Date** _______________________________ **Start time** __________ **End Time** __________

<table>
<thead>
<tr>
<th>Possible Points</th>
<th>Points Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Takes BSI precautions

<table>
<thead>
<tr>
<th>Identifies indications for obtaining a blood glucose level: (1 pt. each)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Altered level of consciousness</td>
</tr>
<tr>
<td>• Suspected diabetic</td>
</tr>
<tr>
<td>• Non-traumatic seizures</td>
</tr>
<tr>
<td>• Unconscious patient of unknown etiology</td>
</tr>
</tbody>
</table>

- 4

Identifies the normal parameters for blood glucose

- 1

Checks equipment: (1 pt. each)

- Glucometer
- Test strip
- Lancet or spring-loaded puncture device
- Alcohol prep(s)

- 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
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
# Intravenous Dextrose Administration

**Student** ______________________________  **Evaluator** ______________________________

**Date** ______________________________ **Start time** _______ **End Time** _______

<table>
<thead>
<tr>
<th>Task</th>
<th>Possible Points</th>
<th>Points Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Takes BSI precautions</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Completes assessment(s) and determines patient needs medication</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Calls medical direction for order or confirms standing order</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Lists indications for intravenous dextrose administration: (1 pt. each)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Clinical condition suggests hypoglycemia</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>- Glucometer reading</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Checks for known allergies, contraindications, or incompatibilities: (1 pt. each)</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>- Extravasations and tissue necrosis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Requires a pre-administration blood sample to be drawn</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Checks medication to determine: (1 pt. each)</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>- Expiration date</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Concentration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Correctness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Clarity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbalizes the appropriate dosage for the medication</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Properly administers medication: (1 pt. each)</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>- Draws up required dosage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Instructs patient about the medication effects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Administers medication in IV port closest to patient-slow push</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Periodically flows IV to ensure patency of line</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Follows medication with a saline bolus/flush</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbalizes the need for transport</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Verbalizes ongoing assessment including observing patient for desired/ adverse side effects</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Verbalizes proper documentation of medication administration</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>20</strong></td>
<td></td>
</tr>
</tbody>
</table>
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
### IV Therapy and Medication Administration Skill Sheet

**Intravenous Narcan Administration**

<table>
<thead>
<tr>
<th>Task</th>
<th>Possible Points</th>
<th>Points Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Takes BSI precautions</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Completes assessment(s) and determines patient needs medication</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Calls medical direction for order or confirms standing order</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Lists indications for intravenous Narcan administration: (1 pt. each)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Respiratory depression induced by narcotics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Altered mental status unknown etiology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Non-traumatic seizures unknown etiology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Checks for known allergies, contraindications, or incompatibilities: (1 pt. each)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Hypersensitivity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Narcotic withdrawal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Checks medication to determine: (1 pt. each)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Expiration date</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Concentration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Correct medication</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Clarity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbalizes the appropriate dosage for the medication (adult and pediatric)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Verbalizes consideration of restraining patient prior to medication administration</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Properly administers medication: (1 pt. each)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Draws up required dosage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Instructs patient about the medication effects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Administers medication in IV port closest to patient-slow push</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Periodically flows IV to ensure patency of line</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Follows medication with a saline bolus/flush</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbalizes the need for transport</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Verbalizes ongoing assessment including observing patient for desired/ adverse side effects</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Verbalizes proper documentation of medication administration</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL** 21
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
## Atomized Intranasal Naloxone (Narcan) Administration

<table>
<thead>
<tr>
<th>Task</th>
<th>Possible Points</th>
<th>Points Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Takes BSI precautions</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Completes assessment(s) and determines patient needs medication</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Calls medical direction for order or confirms standing order</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Lists indications for intranasal Narcan administration: (1 pt. each)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>• Respiratory depression induced by narcotics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Altered mental status unknown etiology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Non-traumatic seizures unknown etiology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Checks for known allergies, contraindications, or incompatibilities: (1 pt. each)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>• Hypersensitivity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Narcotic withdrawal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Checks medication to determine: (1 pt. each)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>• Expiration date</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Concentration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Correct medication</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Clarity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbalizes the appropriate dosage for the medication</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>(adult and pediatric)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbalizes consideration of restraining patient prior to medication administration</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Properly administers medication: (1 pt. each)</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>• Draws up required dosage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Instructs patient about the medication effects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Expels air from the syringe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Assembles mucosal atomization device (MAD) to syringe securely</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Briskly compresses the syringe plunger</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbalizes the need for transport</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Task</td>
<td>Score</td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>Verbalizes ongoing assessment including observing patient for desired/adverse side effects</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Voices proper documentation of medication administration</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>23</strong></td>
<td></td>
</tr>
</tbody>
</table>

**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
### IV Therapy and Medication Administration Skill Sheet

**Nebulized Albuterol Administration**

| Student evaluator | 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 | | | | | 2 | |
| - Bronchospasm due to reversible obstructive airway disease (asthma, bronchitis, acute bronchospasm) | | | | | |
| Checks for known allergies, contraindications or incompatibilities: (1 pt. each) | | | | | 2 | |
| - Hypersensitivity | | | | | |
| - Cardiac dysrhythmias associated with tachycardia | | | | | |
| Checks medication to determine: (1 pt. each) | | | | | 4 | |
| - Expiration date | | | | | |
| - Concentration | | | | | |
| - Correct medication | | | | | |
| - Clarity | | | | | |
| Verbalizes the appropriate dosage for the medication | | | | | 1 | |
| Properly administers medication: | | | | | 5 | |
| - Instructs patient about the medication effects (1 pt.) | | | | | |
| - Assembles the nebulizer and connects to oxygen (2 pts.) | | | | | |
| - Provides appropriate oxygen flow (1 pt.) | | | | | |
| - Assists patient with use of the nebulizer (1 pt.) | | | | | |
| 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 | |
| **TOTAL** | | | | | 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

<table>
<thead>
<tr>
<th>Student</th>
<th>Evaluator</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>Start time</th>
<th>End Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Possible Points</th>
<th>Points Awarded</th>
</tr>
</thead>
</table>

- **Clearly explains procedure to patient**: 1 point

**Selects, checks, and assembles equipment:**
- IO Solution
- Administration set
- IO needle and insertion device
- Sharps container
- Antiseptic swabs, gauze pads, bulky dressing, syringe, etc.

**Checks solution for:**
- Proper solution
- Clarity or particulate matter
- Expiration date
- Protective covers on tail ports

- **Removes protective cover on drip chamber while maintaining sterility**: 1 point
- **Removes protective cover on IO bag tail port while maintaining sterility**: 1 point
- **Inserts IV tubing spike into solution bag tail port until inner seal is punctured while maintaining sterility**: 1 point
- **Turns IO bag upright**: 1 point
- **Squeezes drip chamber and fills half-way**: 1 point
- **Turns on by sliding flow clamp and bleeds line of all air while maintaining sterility**: 1 point
- **Shuts flow off after assuring that all large air bubbles have been purged**: 1 point

**Performs intraosseous puncture**

- **Tears sufficient tape to secure IO**: 1 point
- **Opens antiseptic swabs, gauze pads**: 1 point
- **Takes appropriate anatomical site for IO puncture**: 1 point
- **Identifies appropriate anatomical site for IO puncture**: 1 point
- **Cleanses site, starting from the center and moving outward in a circular motion**: 1 point
- **Prepares IO needle and insertion device while maintaining sterility**: 1 point
- **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 point
- **Inserts needle at proper angle and direction (away from joint, epiphyseal plate, etc.)**: 1 point
Recognizes that needle has entered intramedullary canal (feels “pop” or notices less resistance) &nbsp; &nbsp; 1
Removes stylet and immediately disposes in proper container &nbsp; &nbsp; 1
Attaches administration set to IO needle &nbsp; &nbsp; 1
Slowly injects solution while observing for signs of infiltration or aspirates to verify proper needle placement &nbsp; &nbsp; 1
Adjusts flow rate as appropriate &nbsp; &nbsp; 1
Secures needle and supports with bulky dressing &nbsp; &nbsp; 1
Assesses patient for therapeutic response or signs or untoward reactions &nbsp; &nbsp; 1

**TOTAL** &nbsp; 31

**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

<table>
<thead>
<tr>
<th>Student</th>
<th>Evaluator</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Date ____________________ Start time __________ End Time __________

<table>
<thead>
<tr>
<th>Possible Points</th>
<th>Points Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asks patient for known allergies</td>
<td>1</td>
</tr>
<tr>
<td>Clearly explains procedure to patient</td>
<td>1</td>
</tr>
<tr>
<td>Selects, checks, and assembles equipment:</td>
<td>5</td>
</tr>
<tr>
<td>- Medication</td>
<td></td>
</tr>
<tr>
<td>- Appropriate syringe and needle(s)</td>
<td></td>
</tr>
<tr>
<td>- Sharps container</td>
<td></td>
</tr>
<tr>
<td>- Alcohol swabs</td>
<td></td>
</tr>
<tr>
<td>- Adhesive bandage or sterile gauze dressing and tape</td>
<td></td>
</tr>
<tr>
<td>Selects correct medication by identifying:</td>
<td>5</td>
</tr>
<tr>
<td>- Right patient</td>
<td></td>
</tr>
<tr>
<td>- Right medication</td>
<td></td>
</tr>
<tr>
<td>- Right dosage/concentration</td>
<td></td>
</tr>
<tr>
<td>- Right time</td>
<td></td>
</tr>
<tr>
<td>- Right route</td>
<td></td>
</tr>
<tr>
<td>Checks medication for:</td>
<td>2</td>
</tr>
<tr>
<td>- Clarity</td>
<td></td>
</tr>
<tr>
<td>- Expiration date</td>
<td></td>
</tr>
<tr>
<td>Assembles syringe and needle</td>
<td>1</td>
</tr>
<tr>
<td>Draws appropriate amount of medication into syringe and dispels air while maintaining sterility</td>
<td>1</td>
</tr>
<tr>
<td>Reconfirms medication with partner</td>
<td>1</td>
</tr>
<tr>
<td>Takes or verbalizes appropriate PPE precautions</td>
<td>1</td>
</tr>
<tr>
<td>Identifies and cleanses appropriate injection site</td>
<td>1</td>
</tr>
<tr>
<td>Pinches/stretches skin, warns patient and inserts needle at proper angle while maintaining sterility</td>
<td>1</td>
</tr>
<tr>
<td>Aspirates syringe while observing for blood return before injecting IM medication</td>
<td>1</td>
</tr>
<tr>
<td>Administers correct dose at proper push rate</td>
<td>1</td>
</tr>
<tr>
<td>Removes needle and disposes/verbalizes proper disposal of syringe and needle in proper container</td>
<td>1</td>
</tr>
<tr>
<td>Applies direct pressure to site</td>
<td>1</td>
</tr>
<tr>
<td>Covers puncture site</td>
<td>1</td>
</tr>
<tr>
<td>Verbalizes need to observe patient for desired effect and adverse side effects</td>
<td>1</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------</td>
<td>---</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>26</strong></td>
</tr>
</tbody>
</table>

**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