

Students' Name:..... ID:.....

Lab Activity Objectives:

By the end of this case discussion students should be able to:

- 1- Receive, identify, and confirm the necessary components of standing or verbal medication order.
- 2- Explain the procedure of administering metered-dose inhaler (with/without spacer).
- 3- Demonstrate the procedure of medications given via nebulized inhalation route.
- 4- Demonstrate the proper procedure of medications given via intraosseous route.

Part-1: Inhaled Medication Procedures:

- Metered-dose inhaler (with/without spacer)
- Nebulized Inhalation

Teaching Methods:

- Educational videos
- Instructor demonstration
- Student demonstration (especially for nebulized inhalation)

Part-2: Intraosseous Administration Procedures:

Teaching Methods:

- Educational videos
- Instructor demonstration
- Student demonstration

Helpful Materials:

2.5 mg albuterol per 3 ml (or 2.5 ml) - **NO DILUTION is necessary**

2.5 mg albuterol per 0.5 ml – **Need to be DILUTED with NS to the total of 3 ml**

Student Activity-1: Medication Administration via Nebulized Inhalation

Hypothetical case scenario:

A 45-year old man with past medical history of severe asthma is currently suffering from shortness of breath (SOB) and wheezing after the sand storm that just happen few minutes ago. You arrived to the scene while the victim was suffering from difficulty in breathing & speaking and wheezing. His respiratory rate was slightly elevated but his blood pressure and heart rate are within normal ranges. His son told you that his father gets this kind of SOB when the storm hits. After doing the initial assessment, you pulled the “Adult Asthma/COPD Protocol” (see the last page) to select the right medication.

Selected Medication:

Medication name, dose, route, & frequency:

Evaluation of medication administration:

Pre-administration	<ul style="list-style-type: none"><input type="checkbox"/> Select the correct protocol & confirm the administered medication<input type="checkbox"/> Confirm the patient has no allergy to the requested medication<input type="checkbox"/> Select the right medication, dose, route, for the right patient at the right time (5 of the 6 RIGHTS of medication administration)<input type="checkbox"/> Prepare the necessary equipment
Administration Technique	<ul style="list-style-type: none"><input type="checkbox"/> Assemble the nebulizer & place the medication (dilute with NS if needed – see above) to the nebulizer mist chamber. Make sure the nebulizer mist chamber cap is tightly secured<input type="checkbox"/> Attach the mouthpiece or mask<input type="checkbox"/> Connect the nebulizer to the oxygen tubing and oxygen cylinder (O₂ flow 6-8 L/min in adults & 3 L/min in children) OR connect the nebulizer to compressor<input type="checkbox"/> Have the patient breath normally through the mouthpiece or mask<input type="checkbox"/> Continue treatment until the solution is depleted
Post-administration	<ul style="list-style-type: none"><input type="checkbox"/> Reassess the patient’s vital signs<input type="checkbox"/> Document the medication administration (the 6th rights of the 6 RIGHTS of medication administration)

Instructor comments:

Student Activity-2: IO medication Administration

Hypothetical case scenario:

A 2 year (12 kg) old boy who is showing signs of hypovolemia (dry lips & skin, crying with almost no tears). Upon initial assessment, the patient's blood pressure was slightly low, but his heart rate was slightly high. You get on the radio to medical director. After reporting your assessment, you request an order for a medication to treat the patient's hypovolemia.

Communication for medication Order:

Medical director (instructor):

Paramedic (Student):

Medical director (instructor):

Paramedic (Student):

Evaluation of medication administration:

The student will be evaluated based on the rubric developed by **National Registry of Emergency Medical Technicians, Inc.** (see next page)

Instructor comments:



National Registry of Emergency Medical Technicians
Advanced Level Psychomotor Examination

PEDIATRIC INTRAOSSEOUS INFUSION

Candidate: _____ Examiner: _____

Date: _____ Signature: _____

Actual Time Started: _____	Possible Points	Points Awarded
Checks selected IV fluid for: -Proper fluid (1 point) -Clarity (1 point) -Expiration date (1 point)	3	
Selects appropriate equipment to include: -IO needle (1 point) -Syringe (1 point) -Saline (1 point) -Extension set or 3-way stopcock (1 point)	4	
Selects proper administration set	1	
Connects administration set to bag	1	
Prepares administration set [fills drip chamber and flushes tubing]	1	
Prepares syringe and extension tubing or 3-way stopcock	1	
Cuts or tears tape [at any time before IO puncture]	1	
Takes or verbalizes appropriate body substance isolation precautions [prior to IO puncture]	1	
Identifies proper anatomical site for IO puncture	1	
Cleanses site appropriately	1	
Performs IO puncture: -Stabilizes tibia without placing hand under puncture site and "cupping" leg (1 point) -Inserts needle at proper angle (1 point) -Advances needle with twisting motion until "pop" is felt or notices sudden lack of resistance (1 point) -Removes stylette (1 point)	4	
Disposes/verbalizes proper disposal of needle in proper container	1	
Attaches syringe and extension set to IO needle and aspirates; or attaches 3-way stopcock between administration set and IO needle and aspirates; or attaches extension set to IO needle [aspiration is not required for any of these as many IO sticks are "dry" sticks]	1	
Slowly injects saline to assure proper placement of needle	1	
Adjusts flow rate/bolus as appropriate	1	
Secures needle and supports with bulky dressing [tapes securely or verbalizes]	1	
Actual Time Ended:	TOTAL	24

Critical Criteria

- ___ Failure to establish a patent and properly adjusted IO line within 6 minute time limit
- ___ Failure to take or verbalize appropriate body substance isolation precautions prior to performing IO puncture
- ___ 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 [must aspirate or watch closely for early signs of infiltration]
- ___ Failure to successfully establish IO infusion within 2 attempts during 6 minute time limit
- ___ Performs IO puncture in an unacceptable manner [improper site, incorrect needle angle, holds leg in palm and performs IO puncture directly above hand, etc.]
- ___ Failure to properly dispose/verbalize disposal of blood-contaminated sharps immediately in proper container at the point of use
- ___ 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

Adult Asthma/COPD Protocol

(adapted from NC OEMS protocols)

History

- Asthma; COPD – chronic bronchitis, emphysema, congestive heart failure
- Home treatment (oxygen, nebulizer)
- Medications (theophylline, steroids, inhalers)
- Toxic exposure, smoke inhalation

Signs and Symptoms

- Shortness of breath
- Pursed lip breathing
- Decreased ability to speak
- Increased respiratory rate and effort
- Wheezing, ronchi
- Use of accessory muscles
- Fever, cough
- Tachycardia

Differential

- Asthma
- Anaphylaxis
- Aspiration
- COPD (Emphysema, Bronchitis)
- Pleural effusion
- Pneumonia
- Pulmonary embolus
- Pneumothorax
- Cardiac (MI or CHF)
- Pericardial tamponade
- Hyperventilation
- Inhaled toxin (Carbon monoxide, etc.)

