FAST RESPONSE SCHOOL OF HEALTHCARE EDUCATION
EMERGENCY MEDICAL TECHNICIAN
EMT: MEDICAL – LEARNING SHEET

ASSISTING WITH PRESCRIBED MEDICATION

OBJECTIVE: Student will demonstrate the ability to determine whether the use of prescribed medications is appropriate and properly administer the appropriate medication.

INDICATIONS: To help administer a patient's medication that may be required to treat a specific medical complaint.

EQUIPMENT:
1. Simulated medication
2. Blood Pressure Cuff
3. Stethoscope
4. Patient

Administration Technique:

1. Takes body substance isolation precautions.		
2. Obtains patient's prescribed medication.		
3. Checks The 5 Rights • Right Patient • Right Route • Right Dose • Right Medication • Right Time (Frequency of Administration) & Date (Expiration Date)		
4. Assures that medication is indicated for the patient		
5. Determine if patient has taken any prescribed dose(s).		
6. Contacts Medical Direction for Authorization, if administration is not covered in standing orders.		
Specific Medications		
Nitroglycerin (NTG)	***Metered Dose Inhaler (MDI)***	***Epinephrine Auto-injector***
Ensures systolic BP is at least 90 mmHg.	Assesses breathing and listens to lung sounds	Obtains patient's auto injector.
Ensures patient has not taken an erectile dysfunction medication within the past 24 hours (i.e. Viagra, Cialis).	Directs patient to exhale completely	Checks medication for clarity.
		Removes safety cap from injector.
Places a tablet or sprays single dose under the tongue.	Places inhaler in patient's mouth, depresses canister and has patient inhale deeply.	Pushes injector firmly against lateral thigh and holds for 10 seconds.
Reassesses blood pressure.	Directs patient to hold breath for as long as comfortable.	Discards auto-injector in sharps container.
If pain persists administers 1 dose, every 3-5 minutes, to a maximum of 3 doses, IF systolic BP remains above 100 mmHg.	Reassesses patient's breathing and lung sounds.	
	Administers up to maximum dose.	
7. Reassesses patient for desired effect and possible side effects.		

CRITICAL CRITERIA

- Did not take or verbalize BSI
- Administered medication without obtaining Medical Direction
- Exceeded medications maximum dose
- Failure to manage the patient as a competent EMT
- Administered medication in a way or dosage different then what was ordered by medical direction
- Did not take Initial or Reassess Vital Signs

NITROGLYCERIN (NTG)	
MEDICATION NAME:	Nitroglycerin is the generic name. Some of the trade names of nitroglycerin are: • Nitrostat • Nitro-Bid • Nitrolingual Spray
INDICATIONS:	**ALL** of the following criteria must be met before an EMT administers nitroglycerin to a patient: • The patient exhibits signs and symptoms of chest pain • The patient has physician-prescribed nitroglycerin • The EMT has received approval from medical direction, whether on-line or off-line, to administer the medication
CONTRAINDICATIONS:	Nitroglycerin should not be given if any of the following conditions exist: • The patients' baseline systolic blood pressure is below 90 mmHg or the systolic blood pressure has decreased greater than 30 mmHg from the baseline • The heart rate is less than 50 bpm or greater than 100 bpm • The patient has a suspected head injury • The patient is an infant or child • Three doses have already been taken by the patient • The patient has taken tadalafil (Cialis), vardenafil (Levitra), or sildenafil (Viagra) within the past 24 hours
MEDICATION FORM:	Tablet, Sublingual spray
DOSAGE:	The dosage for EMT administration of NTG is either one table or one spray under the tongue. The most commonly prescribed dose is either 0.3 mg per tablet (or metered spray), or 0.4 mg per tablet (or metered spray). Regardless of the individual dose unit, the administered dose may be repeated in 3-5 minutes if (1) the patient experiences no relief; (2) the blood pressure remains greater than 90 mmHg systolic or does not fall more than 30 mmHg below the baseline systolic pressure; (3) the heart rate remains above 50 bpm and below 100 bpm; and (4) medical direction gives authorization. The total does is three (3) tablets or sprays, to include what the patient took prior to your arrival.
ACTIONS:	• Dilates blood vessels. • Decreases workload of the heart • Decreases cardiac oxygen demand
SIDE EFFECTS:	The aim of administering nitroglycerin is to dilate blood vessels in the heart, but blood vessels in other parts of the body are dilated as well. This dilation can cause: • Headache • A drop in blood pressure • Changes in pulse rate as the body compensates for the

changes in blood vessel size

EPINEPHRINE AUTO-INJECTORS	
MEDICATION NAME:	Epinephrine is the generic name. The trade name is Adrenalin. Trade names of epinephrine auto-injectors are EpiPen, EpiPen Jr., and Twinject (adult and child sizes)
INDICATIONS:	**ALL** of the following criteria must be met before an EMT administers epinephrine auto-injector to the patient: • The patient exhibits signs and symptoms of a moderate-to-severe anaphylactic reaction, including respiratory distress and/or shock (hypoperfusion) • The medication is prescribed to the patient • The EMT has received approval from medical direction, whether on-line or off-line, to administer the medication
CONTRAINDICATIONS:	There are no contraindications for the administration of epinephrine in a life-threatening anaphylactic reaction.
MEDICATION FORM:	Epinephrine is a liquid drug contained within an auto-injector that is designed to automatically inject a precise dose when the safety cap is removed and auto-injector is pressed firmly against the thigh.
DOSAGE:	The adult auto-injector delivers a dose of 0.3 mg (for a patient >66 lb) of epinephrine. The infant-and-child auto-injector delivers 0.15 mg (for a child <66 lb) of epinephrine. A single dose is administered to the patient. It may be necessary in very severe reactions or long transport times to administer a second dose. The EpiPen is capable of delivering only a single dose; however the Twinject device can deliver a second dose with the same device, if necessary. Consult with medical direction or follow your local protocol for the first dose and before you administer any additional dose beyond the first.
ACTIONS:	Epinephrine mimics the responses of the sympathetic nervous system. The alpha properties quickly constrict blood vessels to inprove blood pressure and reduce the leakage from the capillaries. The $beta_2$ properties relax the smooth muscle in the bronchioles to improve breathing and alleviate the wheezing and dyspnea. The $beta_1$, which produces side effects, causes an increase in heart rate and contractility. The drug takes effect within seconds, but the duration of its effectiveness is short, about 10-20 minutes.
SIDE EFFECTS:	The patient may complain of side effects following the administration of epinephrine. Possible side effects include the following: • Increased heart rate • Pale skin (pallor), especially at the site of injection • Dizziness • Chest Pain • Headache • Nausea and Vomiting

- Excitability and anxiousness

METERED-DOSE INHALER (MDI) / SMALL VOLUME NEB (SVN)

MEDICATION NAME:

Metered-dose inhalers contain medications with a variety of generic and trade names, including the following. (Note: Not all drugs that are packaged as an MDI are available for nebulization)

Generic Name	*Trade Name*
Albuterol	Proventil®, Ventolin®
Metaproterenol	Metaprel®, Alupent®
Isoetharine	Bronkosol®
Bitolterol mesylate	Tornalate®
Salmeterol xinafoate	Serevent®
Ipatropium	Atrovent®
Levalbuterol	Xoponex®
Pirbuterol	Maxair

INDICATIONS:

ALL of the following criteria must be met before an EMT administers a bronchodilator by metered-dose inhaler (MDI) or small-volume nebulizer (SVN) to a patient:

- The patient exhibits signs and symptoms of breathing difficulty (respiratory distress).
- The patient has a physician-prescribed metered-dose inhaler containing a medication specifically prepared to be deliverd by nebulization
- The EMT has received approval from medical direction, whether on-line or off-line, to administer the medication

CONTRAINDICATIONS:

A bronchodilator by MDI or SVN should not be given if any of the following conditions exist:

- The patient is not responsive enough to use the MDI or SVN
- The MDI or SVN is not prescribed for the patient
- Medical direction has not granted permission
- The patient has already taken the maximum allowed dose(s) prior to your arrival

MEDICATION FORM:

Aerosolized medication in an MDI
Liquid medication packaged to be poured directly into the nebulizer chamber of an SVN.

DOSAGE:

Each time an MDI is depressed, it delivers a precise dose of medication to the patient. The total number of times the medication can be administered is determined by medical direction. When using an SVN, it usually takes 5-10 minutes for the patient to inhale the medication, depending on the rate and depth of breathing. The medication should be inhaled until the SVN no longer produces a mist.

ACTIONS:

$Beta_2$ agonist that relaxes the bronchiole smooth muscle and dilates

	the lower airways. This reduces the airway resistance and improves airflow into the alveoli.
SIDE EFFECTS:	The side effects associated with the bronchodilator are associated with the drug action itself. The following are common side effect that the patient may complain of or that you may find in your assessment: • Tachycardia • Tremors, shakiness • Nervousness • Dry mouth • Nausea, vomiting

MDI ADMINISTRATION DOS AND DON'TS

When administering a metered-dose inhaler, follow these tips:

DO	DON'T
• Instruct the patient to breathe in slowly and deeply. • Be sure the patient is breathing in though their mouth. • Shake the canister for at least 30 seconds before removing the cap. • Depress the canister as the patient begins to inhale. • Coach the patient to hold his breath as long as possible. • Use a spacer device if available and the patient is used to it.	• Allow the patient to breathe in too quickly. • Allow the patient to breathe in through their nose. • Administer the medication before shaking the canister. • Depress the canister before the patient begins to inhale. • Forget to coach the patient to hold their breath as long as possible.