



# Emergency Medical Training Services

Emergency Medical Technician – Basic Program Outlines

Outline Topic: **GENERAL PHARMACOLOGY**

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Revised: 11/2013

## DEFINITIONS

- Pharmacology - The study of body functions to chemical changes.
- United States Pharmacopeia - Generic names of drugs and official list of drugs. Like an encyclopedia.

## TO BE A DRUG

- Has to do one or more; treat, prevent, and/or diagnose.

## DRUG TERMS

- Indication - when to give the drug.
- Action - what the drug does to the body.
- Dose - amount to be given.
- Contraindication - harmful or fatal if given. Do not give.
- Side effects - a known effect that has nothing to do with the reason for taking the drug.

## DRUG TYPES

- Over the counter.
- Prescription.

## DRUG NAMES

- Generic - lots of letters. First letter should be lower case. Generic name is always listed with a trade name, if trade name is available.
- Trade Name - given by a manufacturer. Lots of marketing so people can remember it and it's use.

## DRUG FORMS

- Tablet - powders pressed to pill form.
- Pill - solid sheet of drug cut into easy to swallow shapes. Like minerals and vitamins - a "horse" pill because it is large.
- Gels - Liquid/gel form.
- Gelatin Capsule - a carrier with drug inside. Helps for time delay or taste
- Sublingual Spray - Liquid spray placed under tongue
- Suspensions - two liquids that separate. Need to be shaken first.
- Gases - like oxygen.

## DRUG ROUTES

- Intramuscular Injection (IM) - needle placed in middle of large muscle. Needle is 90 degree angle to the skin.
- Subcutaneous Injection (SQ or SubQ) - Drug delivered in fat layer. Needle is 45 degree angle to the skin.
- Intravenous (IV) - Fastest and most accurate way to get a drug into circulation.

- Oral (PO)- most medications take 20 to 30 minutes to see benefits. Some drugs like Tylenol and alcohol are absorbed very quickly.
- Rectal (PR) - Liquid or gel form medication. Benefits in about 30 minutes.
- Sublingual - easy to give and relatively fast. Minutes into circulation.
- Inhalation - second fastest into circulation.
- Intraosseous (IO) Needle into bone marrow of long bone. Just as fast as IV.
- Topical - placed on the skin - a patch.

#### 5 "Rights"

- 1) Right patient
- 2) Right drug
- 3) Right route
- 4) Right date
- 5) Right amount
- Right form

#### Nitroglycerin

- Generic: Nitroglycerin Trade: NitroStat, Nitro Paste, and many others

- Indication: chest pain
- Action: smooth muscle dilator, dilated coronary vessels.
- Side Effects: head ache, bitter taste, burning under tongue.
- Route: Sublingual - tablet, spray
- Dose: .4mg every 5 minutes up to three times.
- Contraindicated: BP less than 100mmHg. Max dose given.

#### Oral Glucose

- Generic: Oral Glucose Trade: Glucose and many others
- Indication: Low glucose levels
- Action: increases blood sugar in blood stream
- Side Effects: none in emergency
- Route: mucus membranes
- Dose: 25 to 50 grams
- Contraindicated: not given if nauseated, confused to when the patient cannot follow directions.

#### Activated Charcoal

- Generic: Activated Charcoal Trade: ActiDose and many others.
- Indication: oral overdose/poisoning.

- Action: stops absorption of substance thru GI track.
- Side Effects: tar stool, N/V.
- Route: Oral.
- Dose: Suspension 25 to 50 grams or .5 to 1 gram/kg. If the patient vomits the first dose may give once again.
- Contraindicated: if nauseated prior to giving any charcoal, not able to follow directions or ingestion of heavy metals or corrosive substance.

#### Epi-Pen

- Generic: Adrenalin Trade: Epinephrine.
- Indication: Severe allergic reaction. Dyspnea and lowering Bp.
- Action: increase heart rate and dilates lungs. B2 B1 drug.
- Side Effects: tachycardia, anxiety.
- Route: IM Lateral thigh.
- Dose: .3 adult .15 pedi.
- Contraindicated: none in emergency.

#### Syrup of Ipecac

- Indication: Oral poisoning or overdose.

- Action: makes patient vomit in about 20 minutes.
- Side Effects: none, because they are suppose to have N/V.
- Route: oral.
- Dose: 30mL in 8oz glass of water.
- Contraindicated: if nauseated prior to giving any charcoal, not able to follow directions or ingestion of heavy metals or corrosive substance.

## Oxygen

- Indication: Dyspnea.
- Action: increase available O<sub>2</sub>.
- Side Effects: none in emergency.
- Route: inhalation.
- Dose: dependent on condition.
- Contraindicated: none in emergency.

## Albuterol

- Generic: Albuterol Trade: Ventoin, preventil, and many others.
- Indication: dyspnea to bronchospasms or congestion.
- Action: B<sub>2</sub> dilates smooth muscles of lungs.

- Side Effects: anxiety, tachycardia, hypertension, shaking, nausea, vomiting, sleeplessness, dry mouth.
- Route: MDI or Nebulizer.
- Dose: MDI total 180mcg or Nebulizer 2.5mg in 3mL.
- Contraindicated: none in emergency.

## Aspirin (ASA)

- Generic Name: acetylsalicylic acid (pronounced ə-SET-əl-sal-i-SIL-ik, abbreviated ASA).
- Trade Name: Aspirin, St. Josephs, Bayer, and many others.
- Indication: MI.
- Action: slows platelet clumping therefore reduces vessel blockages, reduces fever, pain, headaches and sore throat pains.
- Side Effects: bleeding.
- Route: oral - chew and swallow.
- Dose: 325mg in emergency. 82mg if taken daily if recommended by doctor.
- Contraindicated: allergic to ASA. No ASA for kids under 12 years of age with a fever present.

## HOW TO GIVE DRUGS

- Get order and repeat word by word.
- Ask Patient 1)if ok to give, 2) if they have allergies, 3) if they have had any lately.

- Get drug and do 5 "rights".
- Make sure you recheck a drug at least once before giving drug.