General Pharmacology; Medical Terminology
(Class 2)

- **Drug**
  - Any substance that has a physiological effect on the body.

- **Nomenclature**
  - **Chemical**
  - Acetylsalicylic acid
  - **Generic/Official**
    - The name listed in the U.S. Pharmacopedia, a government publication listing all drugs in the U.S.
    - Name assigned to drug before it becomes officially listed. Usually a simple form of the chemical name.
    - The “official” name is the generic name followed by “U.S.P.”
    - Aspirin
  - **Trade**
    - Trade name is the name a manufacturer uses to market the drug
    - Usually designed to give clues regarding the action or use of the drug
    - Aspergum (chewable aspirin)

- **Measurement (Metric system)**
  - **Volume (usually liquid measurement)**
    - Liter (L)
      - 1000 ml’s or cc’s
      - 1.05 quarts
    - Milliliters (ml)
      - 1/1000th Liter
      - 0.2 teaspoons
    - Cubic Centimeters (cc)
      - 1/1000th Liter
      - 0.2 teaspoons
    - cc’s and ml’s are the same

  - **Weight (usually solid measurement)**
    - Kilograms (kg)
      - 1000 grams
      - 2.204 pounds
    - Grams (g)
      - 1/1000th Kilogram
      - 0.032 ounces
      - 1000 mg’s
    - Milligrams (mg)
      - 1/1,000th Gram
• Microgram (ug)
  - 1/1000th Milligram

• Measurement (Metric system)
  - Distance
    • Meters (m)
      - 3.28083989501312 feet
      - 100 centimeters
    • Centimeters (cm)
      - 1/100th meter
      - 0.39 inches
      - 10 millimeters
    • Millimeters (mm)
      - 1/1000th meter
      - 0.039 inches

• Forms
  - Compressed powders or tablets - nitroglycerin
  - Liquids for injection - epinephrine
  - Gels - glucose
  - Suspensions - activated charcoal
  - Fine powder for inhalation - prescribed inhaler
  - Gases - oxygen
  - Sub-lingual spray - nitroglycerin
  - Liquid/vaporized fixed dose nebulizers
  - Each drug is in a specific medication form to allow properly controlled concentrations of
    the drug to enter into the blood stream where it has an effect on the target body
    system.

• Forms (in a more orderly presentation based on the states of matter)
  - Solids
    • Compressed powders or tablets
      - Nitroglycerin
    • Uncompressed powder
      - Prescribed inhaler
      - BC Powders
  - Suspensions
    • Activated charcoal
  - Pastes/Gels
    • Nitroglycerin
    • Glucose
  - Liquids
    • Nitroglycerin
    • Epinephrine
  - Gases
    • Oxygen
• Routes
  – Inhalation
    • Nitroxin, Oxygen
  – Ingestion
    • Diabinase
  – Absorption
    • Sublingual (under the tongue)
      – Nitroglycerin
    • Transdermally (across the skin)
      – Nitroglycerin
  – Injection
    • Intramuscular
      – Antibiotics
    • Intravenous
      – Resuscitation drugs
    • Subcutaneous
      – Epinephrine

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• Additional Terminology
  – Actions
    • The desired effects a drug has on the patient and/or his body systems.
  – Side Effects
    • Any actions of a drug other than those desired. Some side effects may be predictable.
  – Indications
    • Instances in which a drug should be used.
  – Contraindications
    • Instances in which a drug should not be used because it may cause harm to the patient or offer no effect in improving the patient's condition or illness.
  – Dose
    • The amount of a drug that should be given.
  – Concentration
    • Ratio of drug to carrier medium.

• Assessment
  – Take baseline vital signs PRIOR to administration
  – Repeat AFTER administration
    • Must be done anyway as part of the on-going patient assessment
    • Usually wait 5 minutes to allow medication effect
    • HOWEVER, BEGIN ASSESSING YOUR PATIENT IMMEDIATELY AFTER ADMINISTERING RAPID ACTING DRUGS
      – Nitroglycerin
      – Epinephrine
Patient Safety
- Always confirm the “Five Rights” before administering any drug
  - Right Patient
  - Right Medication
  - Right Dose/Concentration
  - Right Route/Site
  - Right Date/Time

Minimum documentation
- Name of drug
- Concentration (if applicable)
- Dose
- Route
- Site
- Time
- Effects

Medications usually carried on the Basic EMT unit.
- Activated Charcoal
- Oral Glucose
- Oxygen
- Aspirin
- Some carry Epinephrine
  - Still need physician order

Medications prescribed by a physician and the patient has them in his possession; usually not carried on the Basic EMT unit. May assist patients in taking, with approval by medical control.
- Prescribed Inhaler
- Nitroglycerin
- Epinephrine

Medications Encountered In The Field

Anaphylaxis medications
- Epinephrine

Antibiotic/antiviral medications
- HIV
  - AZT
- Antibiotics
  - Zythromax
• Amoxil
• C-clor
• Phyloxin
• Cipro

Asthma medications
- Breathine (terbutaline)
- Albuterol
- Atrovent
- Survent
- Arobid

Cardiac medications
- Calan (verapamil)
  - Calcium channel blocker
- Adenocard
- Nitroglycerin
- Digoxin
- Lasix
- Capotin
- Clonodine
- Procardia

Diabetes medications
- Injected
  - Insulin
    - Regular
    - Lente
    - NPH
    - Humalin
- Oral
  - Diabinase
  - Orinase
  - Glucophage
  - Micronase
  - Glucotrol

Psychiatric/mood altering medications
- Thorazine
- Haldol
- Elavil
- Lithium
- Cogentin

• Seizure medications
  - Valium
  - Phenobarbital
  - Dilantin
  - Tegretol

**Medical Terminology**

- Medicine has its own language
- Student physicians must know 100,000 new terms by end of first medical school year
- Derivation
  • Greek (with Latin account for >75% of terms)
  • Latin (with Greek account for >75% of terms)
  • German
  • French

• Mechanics
  - Combination of smaller units give large words meaning several things in one word

• Components
  - Root word
    • "noun" of the term
    • May be at beginning, middle or end of the medical term
    • Example: Cardia (Latin meaning heart)
  - Prefix
    • "adjective" or "adverb" of the medical term
    • Found at the beginning of the medical term
    • Changes meaning of the word
    • Example: Endo (Latin meaning inner or within)
  - Suffix
    • "adjective" or "adverb" of the medical term
    • Found at the end of the medial term
    • Changes the meaning of the word
    • Example: itis (Latin meaning inflammation)
  - Connecting vowels
    • Aids pronunciation

**Anatomical Terms**
• Planes
  – Frontal plane
    • Bisects anterior and posterior
  – Transverse plane
    • Bisect superior and inferior
  – Midsagittal plane
    • Bisects lateral and medial
    • Called “Grand midline” or just "midline"

• Regions
  – Epigastric region
    • Just below breastbone
  – Periumbilical region
    • Around umbilicus (belly button)
  – Pelvic region
    • Just above pubic bone

• Terms of direction
  – Superior
    • Toward the head
  – Inferior
    • Toward the feet

• Terms of direction (cont.)
  – Posterior
    • Toward the back
  – Anterior
    • Toward the front

• Terms of direction (cont.)
  – Medial
    • Toward the grand midline
  – Lateral
    • Away from the grand midline

• Terms of direction (cont.)
  – Proximal
    • Toward the torso on an extremity
  – Distal
    • Away from the torso on an extremity
• Terms of direction (cont.)
  – Deep
    • Toward the deep tissues
  – Superficial
    • Toward the skin

• Terms of direction (cont.)
  – Internal
    • Inside or medial
  – External
    • Outside or lateral

• Terms of direction (cont.)
  – Right & Left
    • Always in reference to patient’s right or left

• Terms of position
  – Supine
  – Prone
  – Right lateral recumbent
  – Left lateral recumbent (Coma/Recovery)
  – Trendelenburg (Shock)
  – Reverse or anti-Trendelenburg
  – Fowler’s
  – Semi-Fowler’s (Position of Comfort)

Supine
(Spinal and Airway Maintenance Position)

Prone

Right Lateral Recumbent

Left Lateral Recumbent (Coma/Recovery Position)

Trendelenburg Position (Shock Position)

Trendelenburg Position (Shock Position)

Fowler’s Position

Semi-Fowler’s Position (Position of Comfort)

• Terms of motion
  – Flexion
• Decreasing angle of a joint
  - Extension
• Increasing angle of a joint
  - Abduction
  - Away from midline
  - Adduction
  - Toward midline
  - Circumduction
  - Movement in three dimensions
  - Pronation
  - Palm down
  - Supination
  - Palm up

• Lay terms
  - Head
  - Face
  - Chest
  - Abdomen
  - Back
    - Small of the back
  - Legs
    - Thighs
    - Legs
  - Arms
    - Arm
    - Forearm