Forms of Medications
Parenteral Dosage of Drugs
Solid Forms of Oral Meds

Tablets

- Caplets
- Scored Tablets
- Enteric-Coated Tablets
- Sublingual Tablets
Solid Forms of Oral Meds

Tablets

- Layered Tablets
- Time-Release/Extended Release Tablets
- Filmed
Solid & Liquid Forms of Oral Meds

Capsules

Suspension

Elixir

Syrup
Solid & Liquid Forms of Oral Meds

- These liquids **may** also be administered enterally

  **NG Tube**
  (nasogastric - tube in nose)

  **G Tube**
  (gastrostomy - tube directly in stomach)

  **J Tube**
  (jejunostomy - tube directly into intestine)

- These medications should **NEVER** be given any other route such as **IV or INJECTION**
Don’t Forget

- Tablets come in various strengths ~ Choose the combination of strengths to achieve the least number of pills

  **EXAMPLE:**
  Order 75 mg – have 25 mg & 50 mg tablets available

  (GOAL: maximum number of tablets to give for a certain dosage is 3)

- Capsules are not scored and cannot be divided ~ You must administer in whole amounts only unless you consult a drug reference book or a pharmacist to clarify if a capsule can be opened or pierced or whether a tablet can be crushed
Measuring Oral Liquids

1. **Standard calibrated measuring cup**
   - Metric, apothecary, or household measure
   - Place on flat surface and view at eye level
   - Pour with label facing you so that it can be read
   - Read at the level of the meniscus (low point)

2. **Calibrated droppers**
   - Use only dropper supplied with medication

3. **Calibrated oral syringes (tsp/mL marks)**
   - Used for accuracy of liquid doses (e.g., 6.4 mL)
   - Pour medication in cup and draw up into syringe
   - **NEVER** use oral syringes for parenteral meds
Figure 17-8 Reading meniscus. The meniscus is caused by the surface tension of the solution against the walls of the container. The surface tension causes the formation of a concave or hollowed curvature on the surface of the solution. Read the level at the lowest point of the concave. (From Clayton BD, Willihnganz M: Basic pharmacology for nurses, ed 16, St Louis, 2013, Mosby.)

Figure 17-9 Medicine dropper. (Modified from Clayton BD, Willihnganz M: Basic pharmacology for nurses, ed 16, St Louis, 2013, Mosby.)
**Figure 17-10** Oral syringes. (Courtesy Chuck Dresner. From Clayton BD, Willihnganz M: *Basic pharmacology for nurses*, ed 16, St Louis, 2013, Mosby.)

**Figure 17-11** Filling a syringe directly from medicine cup. (Modified from Clayton BD, Willihnganz M: *Basic pharmacology for nurses*, ed 16, St Louis, 2013, Mosby.)
Parenteral Dosage of Drugs

INJECTABLE ROUTES

1. INTRAMUSCULAR (IM)
2. SUBCUTANEOUS (SUBCUT)
3. INTRADERMAL (ID)
4. INTRAVENOUS (IV)

PARENTERAL ROUTES GENERALLY ACT MORE QUICKLY THAN ORAL BECAUSE THEY ARE ABSORBED MORE RAPIDLY INTO THE BLOOD STREAM
Forms of Parenteral Meds

• Ampule

• Vial

• Mix-o-vial
Forms of Parenteral Meds

• Cartridge

• Prepackaged Syringe
Luerlock syringe hub

Needle

Barrel

Rubber plunger tip

Plunger

(sterile when out of barrel)

Measuring Dose Line
Types of Syringes

**Hypodermic** – 0.5 to 60 mL sizes, smaller syringes are marked off in tenths of a mL, each line is 0.1 mL; Larger syringes are marked off in two tenths of a mL, each line is 0.2 mL
Types of Syringes

**Tuberculin** – 0.5 to 1 mL in capacity, calibrated in **hundredths** (0.01 mL) and **tenths** (0.1 mL)
Guidelines for Syringe Selection

Calculate dose volumes and prepare injectable fractional doses in a syringe using these guidelines:

- **Standard doses MORE than 1 mL:**
  Round to **tenths** and measure in a 3 mL syringe. The 3 mL syringe is calibrated to 0.1 mL increments. **NEVER** round to whole number unless your math comes out to a whole number or the provider orders the dose rounded to the whole number.

- Example: 1.53 mL is rounded to 1.5 mL and drawn up in a 3 mL syringe.
Guidelines for Syringe Selection

- **Small (less than 1 mL); critical care; or children’s doses:** Round to **hundredths** and measure in 1 mL syringe. The 1 mL syringe is calibrated in 0.01 increments.

  - **Example:** 0.257 mL is rounded to 0.26 mL and drawn up in a 1 mL syringe.

- Amounts of **0.5–1 mL** calculated in tenths can be accurately measured in either a 1 mL or 3 mL syringe.

- Do NOT round on certain medications, one example is Heparin – exact dosage CRUCIAL
Calculation by Formula Method: Parenteral with Conversion

Order: **Robinul 150 mcg IM stat**

Supply:  **Robinul 0.2 mg per mL**

**Step 1. Convert**
- Equivalent: 150 mcg = 0.150 mg

**Step 2. Think**
- You want to give less than 1 mL
Calculation by Formula Method: Parenteral with Conversion

**Step 3. Calculate**

\[
\frac{D \times Q}{H} = \frac{0.150}{0.2} = \frac{3}{4} \text{ mL} = 0.75 \text{ mL}
\]

Given intramuscularly immediately.

Select a 1 mL syringe, and measure 0.75 mL of Robinul 0.2 mg/mL. You may have to change needles, as this is an IM injection.
Order: Vitamin B 12 ~ 0.5 mg IM once a week
Have: Vitamin B 12 ~ 1 mg/mL
Give: _____ mL
Fill in area on correct syringe
ANSWER
Order: Vitamin B 12 ~ 0.5 mg IM once a week
Have: Vitamin B 12 ~ 1 mg/mL
Give: 0.5 mL
Fill in area on correct syringe
Order: Demerol  60 mg IM q 4 h p.r.n pain
Have:  *Demerol 75 mg per 1.5 mL*
Give:  _____ mL
Fill in correct amount on syringe
ANSWER
Order: Demerol  60 mg IM q 4 h p.r.n pain
Have:  *Demerol 75 mg per 1.5 mL*
Give:  **1.2 mL**
Fill in correct amount on syringe
Order: Compazine 7.5 mg IM q 3-4 h p.r.n nausea/vomiting
Have: 10 mL vial Compazine containing 5 mg per mL
Give: _____ mL
Fill in area on correct syringe
ORDER: Compazine 7.5 mg IM q 3-4 h p.r.n nausea/vomiting
Have: 10 mL vial Compazine containing 5 mg per mL
Give: 1.5 mL
Fill in area on correct syringe
Order: Vistaril 20 mg IM q 4 h p.r.n nausea
Have: 10 mL vial of Vistaril 25 mg/mL
Give: _____ mL
Fill in area on correct syringe
ANSWER
Order: Vistaril 20 mg IM q 4 h p.r.n nausea
Have: 10 mL vial of Vistaril 25 mg/mL
Give: 0.8 mL
Fill in area on correct syringe