Three Steps to Dosage Calculations using the **Formula Method**

**Step 1. Convert**
- Ensure all measurements are in the same system of measurement and the same size unit of measurement. If not, convert before proceeding.

**Step 2. Think**
- Estimate what is a reasonable amount of the drug to be administered.

**Step 3. Calculate**
- Apply the formula:

\[
\frac{D}{H} \times Q = X
\]

(Answers to the problems on the slides will be in the notes)
**Formula Method Example**

- **Step 1. Convert**
  - Ensure all measurements are in the same system of measurement

- **Step 2. Think**
  - Is this a reasonable amount of drug to be administered.

- **Step 3. Calculate**
  \[
  \frac{D}{H} \times Q = X
  \]

- **Order:** Seconal 100 mg p.o. at bedtime
  \[100 \text{ mg} \times 1 = 1 \text{ capsule}\]

- **Have:** Seconal capsules 100 mg
  \[100 \text{ mg}\]

- **Order:** Dilantin 60 mg p.o. b.i.d.
  \[60 \text{ mg} \times 1 = 2 \text{ tablets}\]

- **Have:** Dilantin 30 mg tablets
  \[30 \text{ mg}\]
Formula Method

Step 1. Convert
Step 2. Think
Step 3. Calculate

- **Order:** Thorazine 75 mg p.o. b.i.d.
  - **Have:** Thorazine 25 mg tablets

- **Order:** Tagamet 800 mg p.o. at bedtime
  - **Have:** Tagamet 400 mg tablets

- **Order:** Vasotec 2.5 mg p.o. daily
  - **Have:** Vasotec 2.5 mg tablets
Formula Method

Step 1. Convert
Step 2. Think
Step 3. Calculate

- Order: *Valium 4 mg p.o. b.i.d.*
- Have: *See label*
Formula Method

Step 1. Convert

Step 2. Think

Step 3. Calculate

- **Order:** *Dilaudid 6 mg p.o. b.i.d.*
- **Have:** *See label*
**Formula Method**

Step 1. Convert

Step 2. Think

Step 3. Calculate

- **Order:** *Dilantin 15 mg p.o. b.i.d.*
- **Have:** *See label*
The physician orders Halcion 0.25 mg p.o. at bedtime. How many tablets will the nurse administer per dose? _______
Lortab 5/500 p.o. now is ordered for Mrs. X for pain. How many tablets will she receive per dose? ________ 
How much acetaminophen is in each tablet? ________
The physician has prescribed Cytotec 0.2 mg p.o four times daily with meals and at bedtime for a patient with a history of gastric ulcers. How many tablets will the patient receive for each dose? _____
• Order: **Clindamycin 0.6 g IV q 12h**

• Have available: **Clindamycin 300 mg/2 mL**

• Approximate equivalent: 1 g = 1000 mg

• Convert: 0.6 g = 600 mg

\[ \frac{D}{H} \times Q = X \]

\[ \frac{600 \text{ mg}}{300 \text{ mg}} \times 2 \text{ mL} = \_ \_ \_ \_ \_ \_ \]

2 $\times$ 2 mL = 4 mL IV q 12 h
Formula Method

Step 1. Convert
Step 2. Think
Step 3. Calculate

- **Order:** Atropine 0.2 mg IV b.i.d.
- **Have:** See label
Formula Method

Step 1. Convert
Step 2. Think
Step 3. Calculate

- **Order:** *Kytril 1 mg IV b.i.d.*
- **Have:** *See label*
Formula Method

Step 1. Convert
Step 2. Think
Step 3. Calculate

- Order: Metformin 0.5 g PO b.i.d.
- Have: See label
Your adult patient has acute bronchitis and has cefaclor 500 mg p.o. q12 h ordered. How many milliliters will you administer per dose? _________
The physician orders Prozac liquid 30 mg p.o. twice a day. How many milliliters will you administer per dose? _______
Mr. Scheottle receives Vibramycin 100 mg p.o. q12 h for treatment of inclusion conjunctivitis. How many milliliters will the nurse administer per dose? _______
The next few slides will demonstrate how to calculate drug dosages using the ratio-proportion method.
Three Steps to Dosage Calculation for the Ratio-Proportion Method

- **Step 1. Convert**
  - Convert all units to the same system, and all units to the same size.

- **Step 2. Think**
  - Make sure you set up problem correctly, the known ratio is what you have available (on the medication label) is placed on the left side, the unknown, what is ordered is placed on the right side.

- **Step 3. Calculate (colon format or fraction format)**

\[
\frac{\text{Dosage on Hand}}{\text{Amount on hand}} = \frac{\text{Dosage desired}}{\text{Amount Desired}}
\]

\[
\frac{\text{Dosage on hand}}{\text{Amount on hand}} = \frac{\text{Dosage desired}}{X \text{ Amount desired}}
\]
Order: clindamycin 0.6 g IV q.12h

Available: Cleocin phosphate (clindamycin) 300 mg/2 mL
- **Order:** Clindamycin 0.6 g IV q.12h
- **Have available:** Clindamycin 300 mg/2 mL

**Step 1. Convert**
- Equivalent: 1 g = 1000 mg
- Larger to smaller, multiply ~ move decimal 3 places to the right
  - 0.6 g = 600 mg

**Step 2. Think**
- Set up the formula correctly
  Dosage on Hand: Amount on hand = Dosage desired: Amount Desired
  - 300 mg: 2mL = 600 mg: x mL

**Step 3. Calculate**
- Multiply extremes, then means
  - (outer #, then inward #)
  - \[\frac{300X}{300} = \frac{1200}{300}\]
  - \[X = \frac{1200}{300} = 4 \text{ mL given IV q 12 hrs}\]