**TEACHING TOOL**

**Calculating Dosage Systems**

To make conversions from metric to apothecary or household systems it is necessary to memorize or refer to equivalency tables. A conversion chart will be in all medication administration rooms.

* To convert milligrams to grains, use the following formula:

1 grain Dose desired

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Milligrams per grain Dose on hand

Example: You need 180 mg of this medication and it is supplied in 60mg/ml form.

 How many grains will you give?

 1 grain x

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 60 mg/grain 180 mg

60x = 80

X = 3 grain

To convert when we have one grain equal to 60mg/grain when have 180 milligrams OR

You may also make this conversion as a ratio:

1 gr: 60mg as x gr: 180mg

60x = 180

X = 3 grain

* To calculate oral dosage use the following formula:

 D where D=desired dosage

 H H = dosage on hand

 X = dosage to be administered

Example: Order reads give 20 mg Lisinipril po twice daily. You are supplied with Lisinipril 10 mg tablets. How many tablets do you give?

20mg = x (dosage to administer)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 10 mg

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10x = 20

X = 2 Give two tablets

* To calculate liquid form, use the following formula:

 D

\_\_\_\_\_\* (multiply) Q = x where D=desired dosage

 H H=dose on hand

 Q=quantity

 x=amount to be administered

Example: We have an order to give 400 mg Dilantin po every 8 hours and we are supplied with Dilantin 100 mg/ml. How many ml do we give?

400 Mg (desired dose)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Q 1 ml (quantity per 100 mg) = x 100 mg (dose on hand)

* To calculate parenteral degrees, use the same formula as above.
* Always check calculation (twice) before drawing up the medication.
* Look at the label on the vial at least three times to validate the order for the medication.
* Look at the order in the Medication Administration Record at least three times to validate the order for the medication.
* Always follow the Five Rights Rule when administering any medication:

1. Right Medication

2. Right Client/Resident

3. Right Time

4. Right Method

5. Right Dosage – Validate calculations of divided doses with another nurse.