Safe Dose Ranges

Safe dose ranges are used to determine if the primary care provider's order is appropriate (safe) to give to the client. The safe dose range is obtained by looking up the medication in the drug reference (this could be a CURRENT drug book or an online reference program, such as Micromedex). Nurses must look up this information prior to administering medications in order to ensure client safety (remember, you are the last check point of safety for your client). Safe Dose Ranges (SDR) may be provided in simple ranges (for example, 5 to 10 mg per dose) or in ranges based on client weight (5 to 10 mg/kg/dose or 5 to 10 mg/kg/day in divided doses). Remember, when you are calculating these, you are assessing the provider order for safety, so you will be calculating how many milligrams per dose the client can safely receive.

Here is an example:

A client has an order to receive Med X 300 mg bid. The client weighs 110 pounds. SDR: 10 – 15 mg per kg per day in 2 or 3 divided doses. Is this ordered dose safe?

First, we will convert our pounds to kilograms – you will always want the weight in kg (please double check the weight prior to starting, if it is already in kg, you do not need to convert it again!!)

110/2.2 = 50 kg

Then, we are going to find our low range:

$$\text{Low } \frac{\text{mg}}{\text{Dose}} = \frac{10 \text{ mg}}{1 \text{ kg}} \times \frac{50 \text{ kg}}{1 \text{ day}} \times \frac{1 \text{ day}}{2 \text{ doses}} = 250 \text{ mg/dose}$$

**One common question is how do you know whether you should use 2 or 3 divided doses from the SDR – the answer is, look to your order, and use the way the provider orders it. That way, your answer is in the correct amount.

Next, we will find the high range:

$$\text{High } \frac{\text{mg}}{\text{Dose}} = \frac{15 \text{ mg}}{1 \text{ kg}} \times \frac{50 \text{ kg}}{1 \text{ day}} \times \frac{1 \text{ day}}{2 \text{ doses}} = 375 \text{ mg/dose}$$

So, our safe range for this patient per dose is 250 mg to 375 mg. The order is for 300 mg per dose, so it is a SAFE order because it falls within our acceptable range. The provider could order anywhere in that range, but if they order below (240 mg, for example), the medication will not be beneficial. If they order over the high limit (400 mg, for example), they will be overdosing the medication. If the ordered amount is outside of the acceptable range when you calculate your dose, you will hold the medication and consult the provider. Do not ever give a medication outside of the safe range! You will use safe range again when you get to the pediatric medications, and there are practice problems included there also ☺