Calculating Dosage per Day

This tutorial discusses a process for calculating a recommended daily dosage range.

Our first example: Tegretol (Caramazepine) has been prescribed for a patient currently weighing 143 lbs. The drug literature recommends 7-15 mg/kg/day. In checking the appropriateness of the drug order, you determine that ___ to ____ mg of Tegretol would be an appropriate dose per day.

Calculating Dosage per Day

Step One – Write down the patient weight – convert.
Step Two – Write down the recommended strengths.
Step Three – Reduce the units.
Step Four – Perform the math.
Calculating Dosage per Day

Our first example: Tegretol (Caramazepine) has been prescribed for a patient currently weighing 143 lbs. The drug literature recommends 7-15 mg/kg/day. In checking the appropriateness of the drug order, you determine that ___ to ____ mg of Tegretol would be an appropriate dose per day.

**Step One** – Write down the patient’s weight and convert to the same weight units the literature uses.

In our example, the patient weighs 143 lbs. We’ll write this as a fraction with a denominator of 1.

Since the literature recommendation uses kg, we need to convert to kg. (Round to tenths.)

\[
\frac{143 \text{ lbs}}{1} \times \frac{1 \text{ kg}}{2.2 \text{ lbs}} = \frac{143}{2.2} \text{ kg}
\]

\[
143 \div 2.2 = 65 \text{ kg}
\]

**Step Two** – Write down the recommended strengths.

Since the dosage has a range, we will need to calculate both a low and high recommended dosage.

<table>
<thead>
<tr>
<th>(low dosage)</th>
<th>(high dosage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>65 kg</td>
<td>65 kg</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1 mg/kg/day</td>
<td>1 mg/kg/day</td>
</tr>
<tr>
<td>7 mg</td>
<td>15 mg</td>
</tr>
</tbody>
</table>

**Step Three** – Reduce the units.

Cross off any matching pairs of unit labels. The labels left should be what you want to find.

In this example, the units left are mg/day which is what we want to find.

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**Step Four** – Perform the math.

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<td>15 mg</td>
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\[
65 \times 7 = \frac{455}{1} \text{ mg/day}
\]

\[
65 \times 15 = \frac{975}{1} \text{ mg/day}
\]

Reduce any fractions and remember the units label.

455 mg/day 975 mg/day

You determine that 455 to 975 mg of Tegretol would be an appropriate daily dosage.
**Calculating Dosage per Day**

**Step One** – Write down the patient’s weight and convert to the same weight units the literature uses.

In our example, the patient weighs 12 lbs 13 oz. To begin convert the weight to lbs only.

\[
12 \ + \ 13 = 16
\]

We’ll write this as a fraction with a denominator of 1.

Our second example: Penicillin G has been prescribed for a patient currently weighing 12 lbs 13 oz. The drug literature recommends 100–250 units/kg/day. In checking the appropriateness of the drug order, you determine that to units of Penicillin G would be an appropriate dose per day.

**Calculating Dosage per Day**

**Step One** – Write down the patient weight – convert.

**Step Two** – Write down the recommended strengths.

**Step Three** – Reduce the units.

**Step Four** – Perform the math.
### Calculating Dosage per Day

**Our second example:** Penicillin G has been prescribed for a patient currently weighing 12 lbs 13 oz. The drug literature recommends 100-250 units/kg/day. In checking the appropriateness of the drug order, you determine that ___ to ____ units of Penicillin G would be an appropriate dose per day.

**Step One – Write down the patient’s weight and convert to the same weight units the literature uses.**

In our example, the patient weighs 12 lbs 13 oz. To begin convert the weight to lbs only.

We’ll write this as a fraction with a denominator of 1.

\[
\frac{12 \text{ lbs} + 13 \text{ oz}}{16} = \frac{12.8125 \text{ lbs}}{1} \quad \text{(Round to tenths.)}
\]

Since the literature recommendation uses kg, we need to convert to kg.

\[
1 \text{ kg} = \frac{2.2 \text{ lbs}}{1}
\]

\[
12.8125 \times 1 \times \frac{2.2}{1} = 5.8 \text{ kg}
\]

12 lbs 13 oz = 12.8125 lbs

**Step Two – Write down the recommended strengths.**

Since the dosage has a range, we will need to calculate both a low and high recommended dosage.

<table>
<thead>
<tr>
<th>(low dosage)</th>
<th>(high dosage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.8 kg</td>
<td>5.8 kg</td>
</tr>
<tr>
<td>1 kg/ day</td>
<td>1 kg/ day</td>
</tr>
<tr>
<td>100 units</td>
<td>250 units</td>
</tr>
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</table>

**Step Three – Reduce the Units.**

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</tr>
<tr>
<td>100 units/ day</td>
<td>250 units/ day</td>
</tr>
</tbody>
</table>

In this example, the units left are units/day which is what we want to find.

**Step Four – Perform the math.**

\[
5.8 \times 100 = 580 \quad \text{units/day}
\]

\[
5.8 \times 250 = 1450 \quad \text{units/day}
\]

Reduce any fractions and remember the units label.

580 units/day

You determine that 580 to 1450 units of Penicillin G would be an appropriate dose per day.