

# Pediatric Dosing, Post Drug PPT

**Objectives:** To acquire skill in accurately breaking down adult medications to medicate children.  
To acquire skill in breaking down pediatric antibiotic powder into vials for single doses.

**Materials:** Empty bottles containing about 1-2 cups (250-500 ml) each; powder to resemble pediatric antibiotic, about 100 ml within each of these bottles; metric measuring cups, 50, 100, 200 ml approximately; metric measuring spoons, 2, 5, 10, 20, 30 ml, approximately, labeled as to size; clean paper for making funnels to pour powder; spent, clean, dry antibiotic vials, about 10 ml each, with removable stoppers; graph paper; a variety of tablets and capsules of various sizes in labeled containers; heavy spoons or some other device for crushing tablets; single-edged razors for cutting tablets and for spreading powder on graph paper; small, flat pieces of wood for cutting boards; a hand calculator for each student; a box at each station for collecting the vials.

**Preparation:** Make stations, each with a description of a patient (age, weight), the medication required, tablets or capsules labeled as that medication, and the usual adult dose. Some suggestions are in the table below. The students move from station to station in groups of three. At each station they divide the medication provided, putting a single dose of that medication for that child into a vial. They then label the vial with the name of the medication and their group number. At the end of the lab, you will visually compare the vials for each story problem, being sure that the amounts in the one-dose vials are approximately equal.

## Student Steps for each station:

1. With your group, read each story problem.
2. Discuss what dosage of medicine is appropriate for that child.
3. Discuss how to divide the offered medication to achieve that dose.
4. Divide the medication, putting one dose into one of the vials provided.
5. Label the vial with the medication name and dose, and your group number.
6. Place your vial in the box provided.

## Guidelines:

- Be sure that the students pull capsules apart rather than trying to cut them with a razor or crush them with spoons.
- Be sure they cut on the wood squares provided, not onto a table.
- It takes some muscle power to crush some kinds of tablets.
- Tablets must be crushed fine and the powder mixed well before it is divided.
- If one group's vial contains much more or much less than the other groups, go over the calculation and make them repeat that station. If there are just a few groups it is good for the instructor to do each exercise herself. Then each group can compare its result with a correctly measured vial.
- Emphasize that the students needn't be absolutely precise with these doses. 25 kg is half of an adult dose, but that applies to anything between 21 and 29 kg. When dealing with very small babies, though, 2 kg is not equivalent to 3 kg.
- Encourage creative solutions. The solutions given are not the only correct ones.

**Instructor only page: Suggested Story Problems for Pediatric Dosing Stations<sup>1</sup>**

Patient weight	Preparation	Usual dose	Step 1	Step 2
3 kg	Cotrimoxazole single strength	Adult 2 tablets twice a day	Cut one tablet in half; this is $\frac{1}{4}$ of an adult dose, good for 12 kg.	Crush this and divide the powder into fourths on graph paper. $\frac{1}{4}$ of the powder is one dose.
32 kg	Penicillin VK 250 mg per tablet	Adult 500 mg 4 times a day	Divide some tablets into two pieces	Give him 1.5 tablets 4 times a day, crushing if necessary
8 kg	Rifampin 150 mg per tablet	Adult 4 tablets, single dose daily	Pull a capsule apart; this powder is $\frac{1}{4}$ of the adult dose, good for 12 kg	Give $\frac{2}{3}$ of this amount of powder for each dose, dividing it on graph paper.
17 kg	Doxycycline 100 mg per tablet	Adult 2 tablets twice a day	Crush one tablet; this is $\frac{1}{2}$ of the adult dose, good for 25 kg.	Give the patient $\frac{3}{4}$ of this amount, dividing it on graph paper.
24 kg	Cimetidine 300 mg per tablet	Adult 1 tablet twice a day	Divide some tablets into two pieces.	Give the patient a half of a tablet twice a day, crushing if necessary.
4 kg	Co-artem	Adult 4 tablets twice a day	Crush one tablet; this is $\frac{1}{4}$ of the adult dose, good for 12 kg	Give the patient $\frac{1}{3}$ of this, dividing the crushed medication on graph paper.
41 kg	Ciprofloxacin 500 mg per tablet	Adult 1 tablet twice a day	Divide tablets into halves and fourths.	Give the patient a half and a fourth for each dose.
2 kg	Amoxicillin powder; add water to 125 ml	12 kg child: 5 ml three times daily	There is 50 ml of powder for 25 doses for a 12 kg child. Each dose then is 2 ml of powder.	Spread out 2 ml of powder on graph paper. Divide that into 6 portions. Each dose is one of these portions.
14 kg	Amoxicillin powder; add water to 125 ml	12 kg child: 5 ml three times daily	There is 50 ml of powder for 25 doses for a 12 kg child. Each dose then is 2 ml of powder.	14 kg is close enough to 12 kg; he can have 2 ml of powder for each dose.
10 kg	Aspirin, 325 mg per tablet	Adult: 3 tablets every 6 hours	Grind up 3 tablets.	Give the child $\frac{1}{5}$ of the powder from 3 tablets, dividing it on graph paper.

<sup>1</sup> For the amoxicillin problem, add 50 ml of powder to the bottom of a jar, but don't tell the students the volume of powder. They need to measure it and find that out for themselves.