by the prescriber and pharmacist to verify dosage. The health professional's role is primarily to obtain accurate measurements of the patient.

To find a patient's BSA, use the chart in Figure 8-3.

- Find the patient's height on the left side of the chart, and put a ruler or piece of paper at that point.
- Find the patient's weight on the right side (be sure to find it in kilograms or pounds, depending on how it was measured), and place the other side of the ruler or piece of paper at that point.
- The ruler or paper cuts across the chart. The intersection point indicates the patient's BSA (Check Up 8.8).

RECONSTITUTING POWDERS

Powdered medications occasionally must be converted to liquid form to be administered. This process is called **reconstituting.** After adding a specified amount of sterile water or saline solution, use the conversion ratio on the drug label to calculate the dosage. You are looking for the concentration of the resulting solution (i.e., how much medication is contained in how much liquid). The amount of fluid, called the **diluent,** used to reconstitute the formula adds to the powder's volume, so the final solution (powder and fluid) may be greater than the volume of the diluent. Directions are on the label.

Example 1: A drug label indicates that you should mix 9 mL sterile water with 500 mg powder, which makes a total of 10 mL. To calculate the dosage after reconstituting, use the ratio 500 mg/10 mL.

If you had an ordered dose (D) of 300 mg, available dose (H) of 500 mg in quantity (Q) 10 mL:

$$\frac{300 \text{ mg}}{\mathbf{500 \text{ mg}}} \times 10 \text{ mL} = 6 \text{ mL}$$

Example 2: A drug label indicates you should mix 74 mL of diluent to powder. After reconstitution, the resulting solution will provide 250 mg of medication in every teaspoon (5 mL). Therefore, the ratio for calculating the dosage is 250 mg/5 mL.

If you had an ordered dose of 200 mg:

$$\frac{200 \text{ mg}}{250 \text{ mg}} \times 5 \text{ mL} = 4 \text{ mL}$$

Example 3: A drug label indicates that you should add 3.4 mL diluent to powder containing 1 gram of antibiotic. The resulting solution will provide 250 mg medication per mL. Thus, the ratio for dosage calculations is 250 mg/1 mL (Check Up 8.9).

If you had an ordered dose of 300 mg:

$$\frac{300 \text{ mg}}{250 \text{ mg}} \times 1 \text{ mL} = 1.2 \text{ mL}$$

PARENTERAL CALCULATIONS

Calculating dosages for parenteral (intravenous [IV]) administration is not as difficult as it would seem, but you must understand the equipment and the therapy, covered in Chapter 10. Dimensional analysis is the best way to calculate an IV drip rate because this method uses ratios as conversion factors and reduces the possibility of errors.

The laws related to IV therapy vary from state to state. Check with your state board of medicine to determine your legal responsibilities in terms of the scope of practice for your profession and what you are allowed to handle with parenteral therapy. Parenteral therapy policies also vary among organizations. Regardless of the scope of your responsibilities, you must know how IV dosages are calculated so you can double-check other health-care workers' calculations.