5.13: Intravenous Infusions

So far in this chapter, we have practiced using dimensional analysis to determine dosage calculations for medications given orally and parenterally (by injection). Medications can also be administered intravenously (IV). There are two methods for administering intravenous medications: infusion pump or gravity using IV drip tubing.

In the United States, intravenous medications are most commonly administered via an infusion pump for patient safety. When an infusion pump is used to administer IV medications, it is typically programmed by the nurse in milliliters per hour (mL/hour). However, situations may occur when an infusion pump is not available, so the nurse must also know how to calculate drip rates using IV drip tubing to administer a medication by gravity. There are different types of IV drip tubing, and each type provides a specific number of drops of medication per milliliter.

As we perform math calculations related to IV medication administration, we are ultimately ensuring that our patients are receiving the correct dose over the correct period of time to avoid adverse effects from too-rapid or too-slow intravenous administration. Specific math calculations for IV infusion by gravity and IV infusion by pump are further described in the following sections.