

“Metric is easy for anyone who can count up to ten.”

—CONTRIBUTOR M (source: www.woodweb.com)

3

MEASUREMENT UNITS AND CONVERSIONS FOR MEDICATIONS

Objectives

- Memorize the units of metric measurement used in medication orders.
- State equivalent values of weight (mass) and volume used in metric dose calculations: micrograms, milligrams, grams, kilograms, milliliters, and liters.
- Distinguish milligram, milliliter, and milliequivalent.
- Define the uses of the term *Unit* related to measurements and medications.
- Calculate basic metric oral medication problems using mental arithmetic and decimal placement.
- Verify metric conversions using dimensional analysis.
- Use approved abbreviations for metric units.
- Distinguish metric, household, and apothecary measurements.

Chapter objectives

let students know what skills they should master by the end of the chapter, providing a handy checklist for review.

- Food package labels measured in grams
- Measuring cup illustrating ounces and milliliters
- 30-ml plastic medicine cup showing 1 and 2 tbs
- Several medication labels, prescription or over-the-counter

Estimated Time To Complete Chapter

- 2 hours

Introduction

Three systems of measurement are used for medication doses: metric, household, and apothecary. The metric system is the main system now used for medication doses. Household measures are used for some medications taken at home, primarily liquids. The apothecary system has been almost completely phased out of use. Nurses need to know the metric-household equivalents for home care practice and family teaching. They also need to distinguish the metric and apothecary systems in case a prescriber writes an order in the apothecary system.

The U.S. Metric Association, Inc. was founded in 1916 to advocate U.S. conversion to the French International System of Units (SI), now known as the Modern Metric System. Resistance to change shared by many since Napoleonic times has slowed the U.S. “metrication” progress. In fact, there are anti-metric system associations.

Membership in the European Union requires the use of the metric system. Medicines are now almost entirely ordered and supplied in the metric system. If you would rather count by tens, hundreds, and thousands, then this is the system for you. Because the metric system is a standardized decimal measurement system using multiples (powers) of 10, it is precise and easy to work with. Memorization of