appendix **B**

The International System of Units

The International System of Units (Système International d'Unités or SI units), which is based on the metric system, has been adopted by many countries in an attempt to standardize reports of clinical laboratory data among nations and disciplines. A major reason for using SI units is that biologic substances react in the human body on a molar basis.

The international system, like the conventional system, uses the kilogram for measurement of mass or weight and the meter for measurement of length. The major difference is that the international system uses the mole for measurement of amounts per volume of a substance. A mole is the amount of a chemical compound of which its weight in grams equals its molecular weight. Thus, the concentration of solutions is expressed in moles, millimoles, or micromoles per liter (mol/L, mmol/L, µmol/L) rather than the conventional measurement of mass per volume, such as grams or milligrams per 100 mL or dL. A few laboratory values are the same in conventional and SI units, but many differ dramatically. Moreover, "normal values" in both systems often vary, depending on laboratory methodologies and reference sources. Thus, laboratory data should be interpreted in light of the client's clinical status and with knowledge of the "normal values" of the laboratory performing the test.

In addition to other laboratory tests, measuring the amount of a drug in blood plasma or serum is often useful in the clinical management of various disorders. For example, serum drug levels may be used to guide drug dosage (eg, aminoglycoside antibiotics such as gentamicin), to evaluate an inadequate therapeutic response, and to diagnose drug toxicity.