observation and assessment of respiratory function, including continuous pulse oximetry, electrolytes, and evaluation of blood gases. Accurate documentation of the infant's status is an integral component of nursing care. With the aid of continuous, sophisticated cardiopulmonary monitoring, nursing assessments and daily care may be coordinated to allow for minimal handling of the infant (especially very low birth weight [VLBW] or extremely low birth weight [ELBW] infants) to decrease the effects of environmental stress.

Monitoring Physiologic Data

Most neonates needing close observation are placed in a controlled thermal environment and monitored for heart rate, respiratory activity, and temperature. The monitoring devices are equipped with an alarm system that indicates when the vital signs are above or below preset limits. However, it is essential to check the apical heart rate and compare it with the monitor reading.

Blood pressure (BP) is monitored routinely in sick neonates by either internal or external means. Direct recording with arterial catheters may be used but carries the risks inherent in any procedure in which a catheter is introduced into an artery. BP values gradually increase over the first month of life in preterm and term infants. BP norms vary by gestational age and weight, medications (such as, corticosteroids), and disease process. One of the primary considerations in the preterm infant is the relationship between systemic BP and the determination of adequate cerebral blood flow. In the neonatal intensive care unit (NICU), frequent laboratory examinations and their interpretation are integral parts of the ongoing assessment of infants' progress. Accurate intake and output records are kept on all acutely ill infants. An accurate output can be obtained by collecting urine in a plastic urine collection bag specifically made for preterm infants (see Urine Specimens, Chapter 20) or by weighing the diapers, which is the simplest and least traumatic means of measuring urinary output. The pre-weighed wet diaper is weighed on a gram scale, and the gram weight of the urine is converted directly to milliliters (e.g., 25 g = 25 ml).

Blood examinations are a necessary part of the ongoing assessment and monitoring of the high-risk newborn's progress. The tests most often performed are blood glucose, bilirubin,