

(Njere, Islam, Parish, et al, 2011). In many neonatal centers, the percutaneous central venous catheter (peripherally inserted central catheter [PICC]) is used for parenteral therapy and medication administration because of less expense and decreased neonatal trauma.

In most facilities, NICU nurses insert peripheral IV catheters and maintain the infusions. IV fluids must always be delivered by continuous infusion pumps that deliver minute volumes at a preset flow rate. The catheter is secured to the skin with a transparent dressing (see [Skin Care](#) later in this chapter) with care taken not to cause undue pressure from the catheter hub and tubing. Because all infants, especially those who are ELBW and VLBW, are highly vulnerable to any fluid shifts, infusion rates are carefully regulated and checked hourly to prevent tissue damage from extravasation, fluid overload, or dehydration. Pulmonary edema, congestive heart failure, patent ductus arteriosus, and intraventricular hemorrhage may occur with fluid overload. Dehydration may cause electrolyte disturbances with potentially serious CNS effects.

Infants who are ELBW, tachypneic, receiving phototherapy, or in a radiant warmer have increased **insensible water losses** that require appropriate fluid adjustments. Nurses must monitor fluid status by daily (or more frequent) weights and accurate intake and output of all fluids, including medications and blood products. Serum electrolytes are monitored per unit protocol, and urine electrolytes are obtained as warranted by the infant's condition. ELBW infants often require more frequent monitoring of these parameters because of their inordinate transepidermal fluid loss, immature renal function, and propensity to dehydration or overhydration. Intolerance of even dextrose 5% is not uncommon in ELBW infants, with subsequent glycosuria and osmotic diuresis. Alterations in behavior, alertness, or activity level in these infants receiving IV fluids may signal an electrolyte imbalance, hypoglycemia, or hyperglycemia. Nurses should also be observant for tremors or seizures in VLBW or ELBW infants, because these may be a sign of hyponatremia or hypernatremia.

Nursing Alert

Nurses should be constantly alert for signs of intravenous (IV)