Nursing Alert

It is important to make certain that sensor connectors and oximeters are compatible. Wiring that is incompatible can generate considerable heat at the tip of the sensor, causing second- and third-degree burns under the sensors. Pressure necrosis can also occur from sensors attached too tightly. Therefore, inspect the skin under the sensor frequently.

Applying the sensor correctly is essential for accurate SaO_2 measurements. Because the sensor must identify every pulse beat to calculate the SaO_2, movement can interfere with sensing. Some devices synchronize the SaO_2 reading with the heartbeat, thereby reducing the interference caused by motion. Sensors are not placed on extremities used for blood pressure monitoring or with indwelling arterial catheters because pulsatile blood flow may be affected.

Nursing Tip

Infant: Secure the sensor to the great toe and tape the wire to the sole of the foot (or use a commercial holder that fastens with a self-adhering closure). Place a snugly fitting sock over the foot but check the site frequently for color, temperature, and pulse.

Child: Secure the sensor securely to the index finger and tape the wire to the back of the hand.

Ambient light from ceiling lights and phototherapy, as well as high-intensity heat and light from radiant warmers, can interfere with readings. Therefore, the sensor should be covered to block these light sources. IV dyes; green, purple, or black nail polish; nonopaque synthetic nails; and possibly ink used for footprinting can also cause inaccurate SaO_2 measurements. The dyes should be removed or, in the case of porcelain nails, a different area used for the sensor. Skin color, thickness, and edema do not affect the readings.

Blood gas measurements are sensitive indicators of change in