

considered to be more effective than standard phototherapy for rapid reduction of serum bilirubin levels ([Edris, Ghany, Razek, et al, 2014](#)). The color of the infant's skin does not influence the efficacy of phototherapy. Best results occur within the first 4 to 6 hours of treatment ([Stokowski, 2011](#)). Phototherapy alone is not effective in the management of hyperbilirubinemia when levels are at a critical level or are rising rapidly; it is designed primarily for the treatment of moderate hyperbilirubinemia.

Available commercial phototherapy delivery systems are numerous and include halogen spotlights, light-emitting diodes, fluorescent tubes or bank lights, and fiberoptic mattresses ([Stokowski, 2011](#)). A Cochrane review of 24 studies indicated that conventional phototherapy was more effective at lowering serum bilirubin values than fiberoptic lights alone; when two fiberoptic devices were used simultaneously in preterm infants, the therapy was as effective as conventional therapy at reducing serum bilirubin levels. Combination phototherapy (fiberoptic mattress and conventional overhead lights) was found to be more effective than conventional therapy alone. The authors further concluded that fiberoptic phototherapy is a safe and effective alternative to conventional therapy in preterm infants. The authors also pointed out that no trials were available to show that fiberoptic therapy is more effective than conventional phototherapy ([Mills and Tudehope, 2005](#)).

The [American Academy of Pediatrics, Subcommittee on Hyperbilirubinemia \(2004\)](#) practice parameter guidelines provide suggestions for initiating phototherapy (see [Fig. 8-16, B](#)) and for implementing exchange transfusion in healthy term infants.

Some clinicians believe that preterm infants have a higher risk of developing pathologic jaundice at lower serum bilirubin levels than healthy term infants because of associated illness factors that may increase the entry of bilirubin into the brain; however, research has failed to confirm this belief ([Watchko and Maisels, 2010](#)). Until further research is completed, the recommendations for starting phototherapy in infants weighing less than 1500 g is 5 to 8 mg/dl, 8 to 12 mg/dl for infants weighing 1500 to 1999 g, and 11 to 14 mg/dl for infants weighing 2000 to 2499 g ([Watchko and Maisels, 2010](#)). However, each infant should be carefully evaluated with other illness and risk factors in mind rather than depending on absolute