

PHOTOTHERAPY PROCEDURE

<i>Purpose:</i>	To assist in the reduction of hyperbilirubinemia in neonates, within 3-7 days.
<i>Equipment:</i>	<ul style="list-style-type: none"> • Antibacterial soap • Phototherapy light source box(es), • Fiberoptic pad(s) • Disposable covers • Thermometer • Daily log sheets • Patient Family Educational Material
<i>Procedure:</i>	<ol style="list-style-type: none"> 1. Determine appropriateness of home phototherapy comparing the reported infant condition and Total Serum Bilirubin Levels to the table provided by the American Academy of Pediatrics (AAP) Hyperbilirubinemia Practice Parameters (see attached). 2. Obtain consent for treatment. 3. Wash hands 4. Make a complete physiological assessment of infant including weight check, level of jaundice, and hydration status. 5. Insert fiberoptic pad into a new disposable cover, and secure the cover around the cable with tape or per manufacturer recommendation. If cover becomes soiled, replace with a new one. 6. Connect the power cord to the light source box and plug into a grounded electrical outlet. Firmly place the fiberoptic cable into the light source port. 7. Place light source box on a level surface below the level of infant, but close enough to infant so that it will not be pulled off of surface. 8. Place infant on covered fiberoptic pad so that lighted section of pad is in contact with the skin and secure with self-adhesive tabs. The cover should be worn snug, around infant's torso, not tight. A good rule of thumb is to place one finger between the pad and the infant's body to insure proper ventilation.

9. Turn variable intensity knob on light source box to highest setting, and turn power switch on.
10. Refer to equipment manual for replacing bulb, as each phototherapy system has specific instructions related to that equipment.
11. Put a T-shirt on and swaddle infant in a light blanket or sleeper.
12. Do not interrupt phototherapy treatment except during normal bathing or diaper changes.
13. Instruct parents to refrain from using lotions or oils on the skin during phototherapy treatment.
14. Instruct parents to reposition pad and inspect skin underneath pad for any unusual changes every 2 hours.
15. Additional instruction for parents include diagnosis, monitoring infant's temperature every 4-8 hours while on phototherapy, signs and symptoms of infection, skin care, use of daily log sheet, lab tests required to monitor progress of therapy, breast feeding techniques, newborn care, and intake and output: By day 3 of life breast-fed infants should be nursing at least 8 times or more daily, and have 5-6 wet diapers and 4-5 stools per day. Formula fed infants should be taking 1-2 ounces every 2 1/2 -3 hours. It is contraindicated to supplement with dextrose water. Formula fed Infants should have at least 5-6 wet diapers and 1-3 stools per day.
16. Provide parents with Patient Family Educational Material on all teaching.
17. Total serum bilirubin level should be drawn and evaluated daily to assess effectiveness of treatment, unless otherwise ordered by physician. Refer to Heel Stick Procedure and Dorsal Venipuncture Procedure for lab draws.
18. Document assessment, date and time single or double phototherapy started, all teaching provided, parent comprehension and ability to care for infant receiving home phototherapy.

Treatment Guidelines (According to the American Academy of Pediatrics):

- Treatment consists of close monitoring of clinical presentation, laboratory tests, use of phototherapy and exchange transfusion for the small percent of cases that do not respond to phototherapy.
- The AAP has developed a table that represents the management of hyperbilirubinemia in health term (>37 weeks) newborns. This table can be modified to outline care parameters for healthy preterm infants (34-37 weeks). Keeping in mind each patient course is different; the practitioner can utilize this table to help standardize medical treatment.

Age (in hours)	Total Serum Bilirubin level, mg/dL (µmol/L)			
	Consider Phototherapy~	Phototherapy	Exchange transfusion if Intensive Phototherapy^ fails	Exchange transfusion and Intensive Phototherapy
<= 24*	***	***	***	***
25-48	≥12 (170)	≥15 (260)	≥20 (340)	≥25 (430)
49-72	≥15 (260)	≥18 (310)	≥25 (430)	≥30 (510)
>72	≥17 (290)	≥20 (340)	≥25 (430)	≥30 (510)

~ Phototherapy at these TSB levels is a clinical option that may be used on the basis of individual clinical judgment.

- Term infants that are clinically jaundice at <=24 hours old are not considered healthy and require medical evaluation. Phototherapy is not an appropriate initial treatment.
- Intensive Phototherapy (double phototherapy) should produce a decline in TSB of 1-2 mg/dL within 4-6 hours and the TSB should continue to fall and remain below the threshold level for exchange transfusion. If this does not occur, it is considered a failure of phototherapy.
- When using this table for healthy preterm infants (34-37 weeks) note that bilirubin levels peak later, at 5-7 days of life and phototherapy should be started when TSB levels reach 15mg/dL.
- In Healthy preterm infants over 5-6 days of age, phototherapy may be discontinued at TSB levels of ≤12mg/dL. If less than 5 days old with TSB levels of 10mg/dL or less, phototherapy can be stopped provided there is close monitoring, as peak is not anticipated until 5-7 days.

REFERENCES:

1. American Academy of Pediatrics. (1994). Practice Parameter: Management of Hyperbilirubinemia in the healthy Term Newborn. Pediatrics, 94(4), 1-15.
2. Douglas, E., (1996). Dorsal-Side Venipuncture Recommended for Collecting Blood Samples in Neonates. Anesthesiology News. 24,38-39.
3. Certified Neonatal Phototherapist via PEP on WWW.
4. Ipp, M., (1998). Jaundice and Dehydration in the Early Discharged Healthy term Newborn. public access via www.utoronto.ca/kids
5. Klein, A.,(1995). Teaching Files: Management of Hyperbilirubinemia in the Healthy Full-Term Infant. Prepared Department of Pediatrics, Cedar-Sinai Medical Center LA California, public access via Neonatology on the Web.
6. Tan, K.L., (1997). Efficacy of Bidirectional Fiber-optic Phototherapy for Neonatal Hyperbilirubinemia. Pediatrics. 99 (5). e13.
7. Whaley & Wong, D., Nursing Care of Infants and Children (6th edition) 1999. Mosby Publisher.