



HEALTH HOLDING

HAFER ALBATIN HEALTH
CLUSTER
MATERNITY AND
CHILDREN HOSPITAL

Department:	Neonatal Intensive Care Unit (NICU)		
Document:	Departmental Policy And Procedure		
Title:	Use of Phototherapy		
Applies To:	All NICU Staff		
Preparation Date:	January 12, 2025	Index No:	NICU-DPP-040
Approval Date:	January 26, 2025	Version :	2
Effective Date:	February 26, 2025	Replacement No.:	NICU-DPP-040 (1)
Review Date:	February 26, 2028	No. of Pages:	3

1. PURPOSE:

- 1.1 To reduce serum bilirubin levels, with minimal adverse effects.
- 1.2 To prevent the development of bilirubin-associated neurodevelopmental sequelae.

2. DEFINITIONS:

- 2.1 Phototherapy uses light energy to change the shape and structure of bilirubin, converting it to molecules that can be excreted in the bile or urine, even when normal conjugation is deficient.
- 2.2 Bilirubin in the extravascular spaces of the skin absorbs light most strongly in the blue region of the spectrum near 450-460 nm. Only wavelengths that penetrate tissue and are absorbed by bilirubin have a phototherapeutic effect. Lamps with output predominantly in the 460 to 490 nm blue region of the spectrum are the most effective for treating hyperbilirubinemia.

3. POLICY:

- 3.1 A physician's order is required to start and stop use of phototherapy lights.
- 3.2 Continued use of the lights must be reordered until the bilirubin levels are at normal range
- 3.3 Nursing staff can measure bilirubin using the transcutaneous Bilirubinometer without physician order if they suspect jaundice. They immediately report jaundice to the assigned physician.
- 3.4 In using the guidelines for phototherapy and exchange transfusion, the direct-reacting (or conjugated) bilirubin level should not be subtracted from the total.
- 3.5 Phototherapy graph/chart should be kept according to the gestational age of the newborn.

4. PROCEDURE:

- 4.1 Commence phototherapy once TSB/SBR is greater than the appropriate reference range for neonate's gestation/weight and presence of risk factors.
- 4.2 Neonates should be nursed naked apart from a nappy under phototherapy and will need to be nursed in an isolette to maintain an appropriate neutral thermal environment in severe cases, a "bikini" of a paper face mask may be worn if the baby has loose stools.
- 4.3 Cover the eyes with appropriate opaque eye covers.
- 4.4 Position phototherapy units no more than 30.5cm from the patient.
- 4.5 Expose as much of the skin surface as possible to the phototherapy light. To maximise skin exposure, dress the baby in a nappy and their protective eye covers only.
- 4.6 Ensure eye covers are removed 4-6 hourly for eye care during infant cares or feeding. Observe for discharge/infection/damage and document any changes.
- 4.7 Daily fluid requirements should be reviewed and individualised for gestational and postnatal age.
- 4.8 Maintain a strict fluid balance chart.
- 4.9 Breast feeds may need to be limited to 20 minutes if bilirubin level is high to minimise amount of time out of the lights.
- 4.10 Monitor vital signs and temperature Q 2 hourly, more often if needed.

- 4.11 Cover lipid lines with light resistant, reflective tape to avoid peroxidation.
- 4.12 Phototherapy is used as conventional/ standard phototherapy or as intensive phototherapy.
- 4.13 Conventional phototherapy may be interrupted during feeding or brief parental visits.
- 4.14 If the infant's bilirubin level is approaching the exchange transfusion zone, intensive phototherapy should be administered continuously and intravenous fluids given until a satisfactory decline in the serum bilirubin level occurs or exchange transfusion is initiated.
- 4.15 Ensure that phototherapy unit is turned off during collection of blood for TSB/SBR levels, as both conjugated and unconjugated bilirubin are photo-oxidized when exposed to white or ultraviolet light.
- 4.16 Follow the bilirubin level by plotting it according to postnatal age on the gestational age appropriate phototherapy curves.
- 4.17 Observe for signs of potential side effects:
 - 4.17.1 Overheating – monitor neonate's temperature
 - 4.17.2 Water loss from increased peripheral blood flow and diarrhoea (if present)
 - 4.17.3 Diarrhoea from intestinal hyper motility
 - 4.17.4 Ileus (preterm infants)
 - 4.17.5 Rash
 - 4.17.6 Retinal damage
 - 4.17.7 Bronzing of neonates with conjugated hyperbilirubinemia
 - 4.17.8 Temporary lactose intolerance
- 4.18 Documentation:
 - 4.18.1 Time phototherapy was initiated/ discontinued
 - 4.18.2 Eye shields and genitalia shields in place, and the eye shields removed with feeds/ each assessment
 - 4.18.3 Intake and output. Note development of loose stools.
 - 4.18.4 Measure levels of irradiance once per shift.
 - 4.18.5 Weight changes. Notify the physician if there is significant decrease.
 - 4.18.6 Parental education given.

5. MATERIAL AND EQUIPMENT:

- 5.1 Phototherapy lights
- 5.2 Bili blankets if available
- 5.3 Eye cover and genitalia shields
- 5.4 Phototherapy charts according to gestational age

6. RESPONSIBILITIES:

- 6.1 Physician
- 6.2 All NICU Staffs

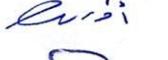
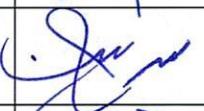
7. APPENDICES:

N/A

8. REFERENCES:

- 8.1 Bhutani, V.K. and the Committee on Fetus and Newborn (2011) Phototherapy to prevent severe neonatal hyperbilirubinaemia in the newborn infant 35 or more weeks gestation, *Pediatrics* 128(4); e1046e1052
- 8.2 Maisels, M.J. & McDonagh, A.F. (2008) Phototherapy for neonatal jaundice, *New England Journal of Medicine* 358(9): 920-928
- 8.3 CBAHI Resources: 3rd Edition

9. APPROVALS:

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