

# Management of Hyperbilirubinemia in the Healthy Term and Near Term Newborn

## Clinical Practice Guideline

### MedStar Health

*“These guidelines are provided to assist physicians and other clinicians in making decisions regarding the care of their patients. They are not a substitute for individual judgment brought to each clinical situation by the patient’s primary care provider-in collaboration with the family of the patient. As with all clinical reference resources, they reflect the best understanding of the science of medicine at the time of publication but should be used with the clear understanding that continued research may result in new knowledge and recommendations”.*

**MedStar Pediatric Ambulatory Best Practices Workgroup accepts and endorses the Hyperbilirubinemia 2022 guidelines set forth by the American Academy of Pediatrics [2022 AAP Hyperbilirubinemia Guidelines](#)**

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MedConnect (Cerner) Users have a hyperbilirubinemia reference table of values of bilirubin results with hours of life at time of testing listed. The Hyperbilirubinemia tab will also plot the values on the **[2004 AAP Hyperbilirubinemia Guidelines](#)** Risk and Phototherapy Tables. **Note that these tables are not consistent with the updated 2022 Guidelines.** The hyperbilirubinemia tab can be found on provider view menu of Pediatric Clinic, Family Medicine Clinic, and Neonatology Admit and Discharge.

**MedStar Pediatric Ambulatory Best Practices Workgroup accepts and endorses using Peditools for Hyperbilirubinemia.** Peditools Hyperbili link can be embedded on the top link bar of MedConnect.

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- **Peditools:** [AAP 2022 Hyperbilirubinemia management guidelines](#), Calculator and clinical decision support for the AAP 2022 guidelines for the management of hyperbilirubinemia in newborns 35 or more weeks of gestation.

**Link to Peditools:** <https://peditools.org/bili2022/>

**Introduction:** Neonatal jaundice is a common problem. Most infants will have modest increases in serum bilirubin which will clear spontaneously in the first weeks of life. The purpose of this guideline is to assist the evaluation and management of bilirubin levels for newborns in the **outpatient setting** with links to useful resources in the management of hyperbilirubinemia. The goal of careful evaluation of neonatal jaundice is to avoid pathologic elevations of serum bilirubin which can result in bilirubin toxicity to the central nervous system.

The AAP 2022 clinical practice guideline emphasizes the opportunities for primary prevention (e.g., treatment to prevent isoimmune hemolytic disease, adequate breastfeeding support), the need to obtain an accurate history and physical examination to determine the presence of hyperbilirubinemia and hyperbilirubinemia neurotoxicity risk factors, the importance of predicting the risk of future hyperbilirubinemia including a predischarge measurement of TSB or TcB, and the importance of post discharge follow-up. This clinical practice guideline provides indications and approaches for phototherapy and escalation of care and when treatment and monitoring can be safely discontinued.

### **Risk Factors for Developing Significant Hyperbilirubinemia**

- Lower gestational age (ie, risk increases with each additional week less than 40 wk.)
- Jaundice in the first 24 h after birth
- PredischARGE transcutaneous bilirubin (TcB) or total serum bilirubin (TSB) concentration close to the phototherapy threshold
- Hemolysis from any cause, if known or suspected based on a rapid rate of increase in the TSB or TcB of >0.3 mg/dL per hour in the first 24 h or >0.2 mg/dL per hour thereafter.
- Phototherapy before discharge
- Parent or sibling requiring phototherapy or exchange transfusion
- Family history or genetic ancestry suggestive of inherited red blood cell disorders, including glucose-6-phosphate dehydrogenase (G6PD) deficiency
- Exclusive breastfeeding with suboptimal intake
- Scalp hematoma or significant bruising
- Down syndrome
- Macrosomic infant of a diabetic mother

### **Hyperbilirubinemia Neurotoxicity Risk Factors**

- Gestational age <38 wk. and this risk increases with the degree of prematurity
- Albumin <3.0 g/dL
- Isoimmune hemolytic disease (ie, positive direct antiglobulin test), G6PD deficiency, or other hemolytic conditions
- Sepsis
- Significant clinical instability in the previous 24 h

**Recommendations:** The following recommendations were developed to aid in the evaluation and treatment of the healthy infant with hyperbilirubinemia.

#### **Evaluation:**

1. Maternal prenatal testing should include ABO and Rh (D) typing and a serum screen for unusual isoimmune antibodies.
2. A Blood Type, Rh(D) and Direct Antiglobulin Test (DAT or Direct Coombs' Test) on the infant's blood are recommended when the mother is Rh-negative, Blood Type O, or has not had prenatal blood grouping.
3. When family history, ethnic or geographic origin, or the timing of the appearance of jaundice suggests the possibility of glucose 6 phosphate dehydrogenase deficiency or some other cause of hemolytic disease, appropriate laboratory assessment of the infant should be performed.
4. Screening for hyperbilirubinemia consists of risk-factor assessment along with the measurement of a transcutaneous bilirubin (TcB) level done before 24 hours of age. Total bilirubin levels, done by transcutaneous or serum measurement, must be done at any time an infant appears clinically jaundiced.
5. Elevated transcutaneous bilirubin levels must be verified by a total serum bilirubin (TSB). Noninvasive devices for the measurement of transcutaneous bilirubin levels can provide a valid reflection of serum bilirubin levels up to a certain point, typically  $\leq 10$  mg/dl. Furthermore, Total Serum Bilirubin levels, not TcB, must be used in the decision to initiate therapeutic intervention for hyperbilirubinemia in the newborn and to follow the response to therapy.
6. Persistent jaundice past 2 weeks of life should be evaluated with Total and Direct Bilirubin.

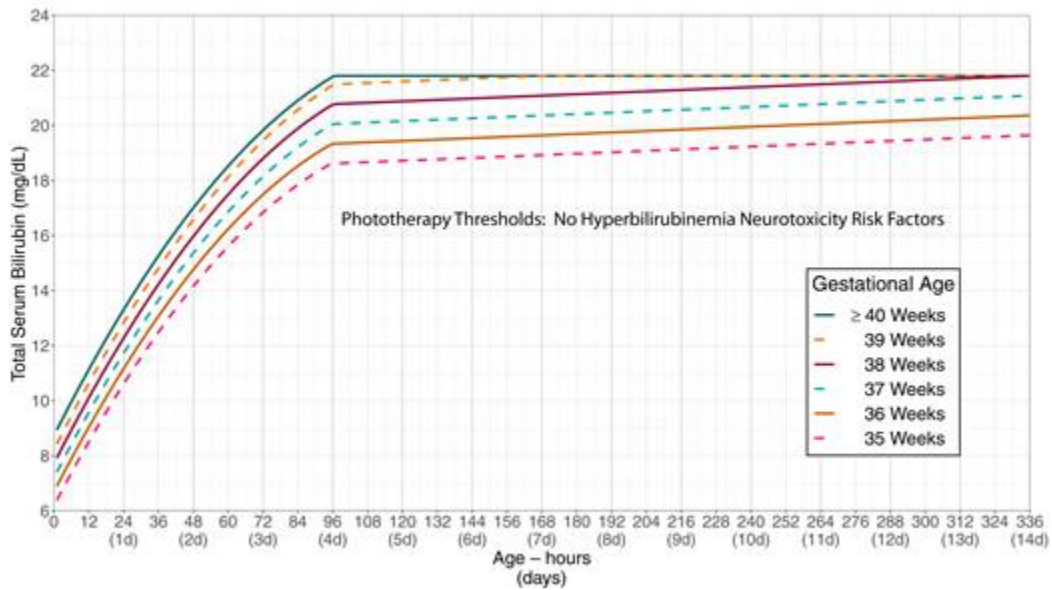
### **Treatment of Hyperbilirubinemia:**

1. If the measured Total Bilirubin level (TcB or TSB) for the patient is not high risk, then continued observation may be an appropriate alternative to repeated bilirubin testing. This would include regular follow-up with a medical provider to assess weight, adequacy of feeding, stooling pattern, urine output and general tone and well-being of the infant.
2. High bilirubin levels may be a **MEDICAL EMERGENCY** and require immediate evaluation at an appropriate facility.
3. Evaluation of newborn infants who develop abnormal signs such as feeding difficulty, behavior changes, apnea, or temperature instability is recommended regardless of whether jaundice has been detected to rule out underlying illness.

### **Treatment of Jaundice Associated with Breastfeeding in the Healthy Term Newborn:**

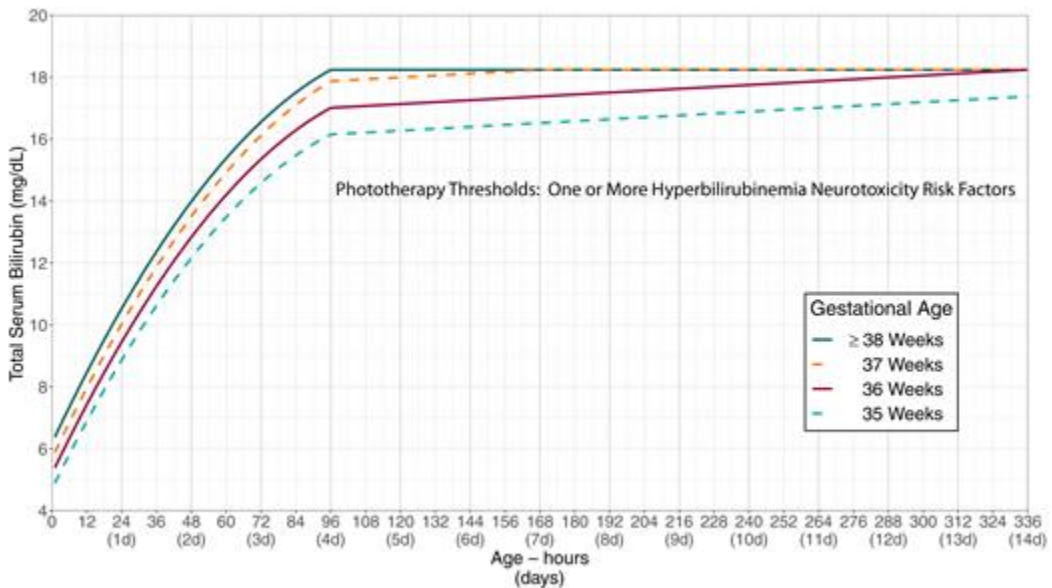
1. Differentiate Suboptimal Intake Jaundice associated with the low volume/relative dehydrated status of a breastfeeding infant as the mother transitions from production of colostrum to breast milk from breast milk jaundice due to currently poorly defined factors in breast milk affecting the efficient metabolism of bilirubin. Suboptimal intake will be reflected in poor weight gain or continued weight loss. Infants with uncomplicated breast milk Jaundice will exhibit persistent elevated unconjugated bilirubin levels in the face of good weight gain, good stool, and urine output. Breast milk jaundice typically occurs later, after 1 week when resolution of breast feeding and physiologic jaundice would occur. Breast milk jaundice may persist for up to 14-21 days and is typically not elevated enough to be harmful to the neonate.
2. To promote successful breastfeeding, initiate breastfeeding as soon as possible within the first hour of life. Encourage breastfeeding 8-12 times in the first 24 hours.
3. Feeding of newborns is compatible with management of hyperbilirubinemia. To augment caloric/fluid intake in the setting of suboptimal Intake Jaundice, supplement with pumped breast milk, donor breast milk or formula. Supplementation may be done with a Supplemental Nursing System (SNS), cup, syringe or bottle feeding. Decisions on which method to use should be patient-specific and include consideration of family and provider preference. Supplementation with water or dextrose water is not recommended as it does not lower the bilirubin level in jaundiced, otherwise healthy, breastfeeding infants. Intravenous fluids are rarely necessary to treat dehydration in an otherwise healthy term newborn.
4. If Total Serum Bilirubin Level rises to a level of concern, continue to manage optimal fluid and caloric intake as noted above with continued breastfeeding and administer phototherapy as recommended by the AAP 2022 Guideline.

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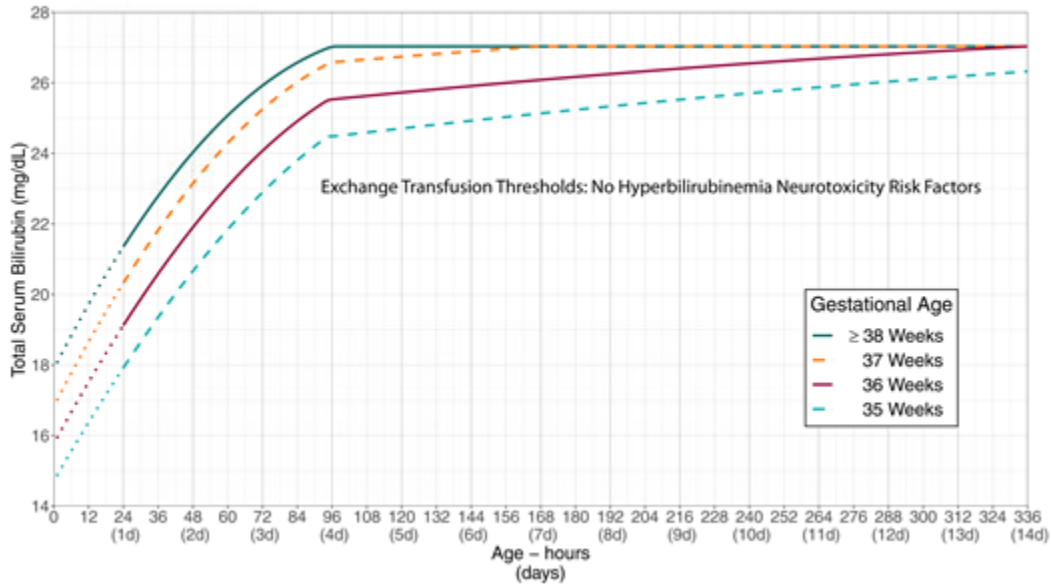
Phototherapy thresholds by gestational age and age in hours for infants with **no recognized hyperbilirubinemia neurotoxicity risk factors** other than gestational age.

2)



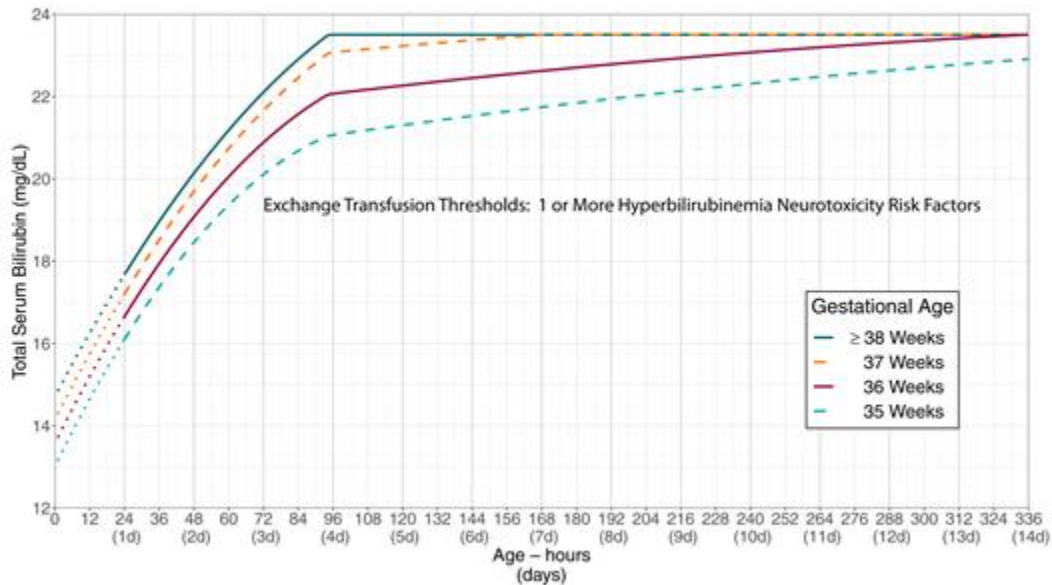
Phototherapy thresholds by gestational age and age in hours for infants with **any recognized hyperbilirubinemia neurotoxicity risk factors** other than gestational age.

3)



**Exchange transfusion thresholds by gestational age for infants with no recognized hyperbilirubinemia neurotoxicity risk factors other than gestational age.**

4)



**Exchange transfusion thresholds by gestational age for infants with any recognized hyperbilirubinemia neurotoxicity risk factors other than gestational age.**

**References:**

1. Kemper AR, Newman TB, Slaughter JL, et al. Clinical, Practice Guideline Revision: Management of Hyperbilirubinemia in the Newborn Infant 35 or More Weeks of Gestation. *Pediatrics*. 2022;150(3):e2022058859 Retrieved from: <https://publications.aap.org/pediatrics/article/150/3/e2022058859/188726>
2. American Academy of Pediatrics. Management of hyperbilirubinemia in the newborn infant 35 or more weeks of gestation. *Pediatrics*. 2004;114:297-316. <http://pediatrics.aappublications.org/cgi/content/full/114/1/297>.
3. Breastfeeding Medicine,(2017). ABM Clinical Protocol #22: Guidelines for Management of Jaundice in the Breastfeeding Infant 35 Weeks or More of Gestation-Revised 2017. Vol 12, Number 5 pp 250-257
4. **Peditools:** [AAP 2022 Hyperbilirubinemia management guidelines](https://peditools.org/bili2022/), Calculator and clinical decision support for the AAP 2022 guidelines for the management of hyperbilirubinemia in newborns 35 or more weeks of gestation. <https://peditools.org/bili2022/>

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