



Neonatal Practice Tool: Hyperbilirubinemia



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Introduction

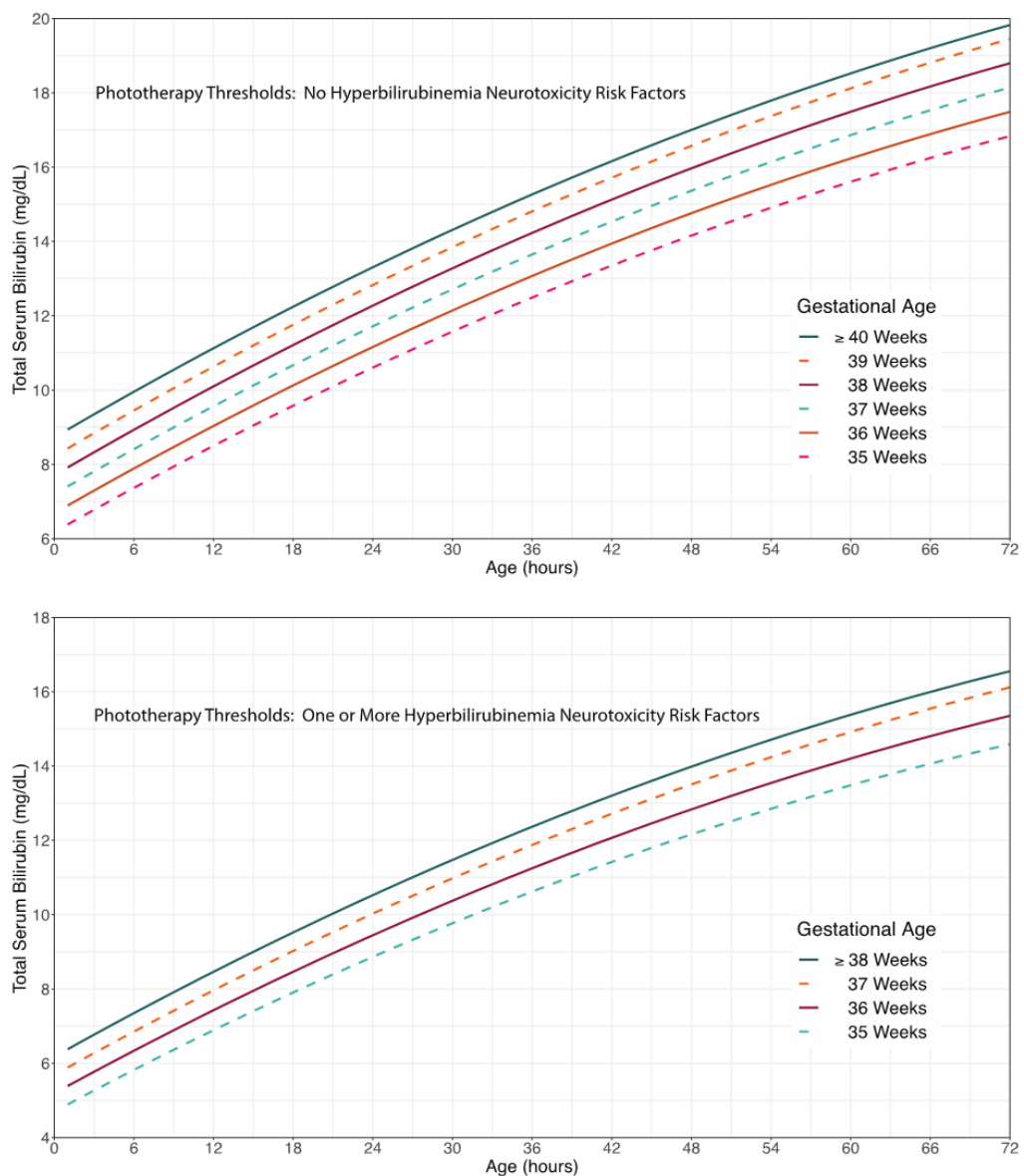
The American Academy of Pediatrics recently revised its guidelines for the management and prevention of hyperbilirubinemia in the newborn infant ≥ 35 weeks' gestation. The committee developing this update included clinicians from Nationwide Children's Hospital. This practice tool for neonatologists and general pediatricians/hospitalists overviews hyperbilirubinemia risk assessment, monitoring, and treatment.

Phototherapy and Escalation of Care

Decisions to initiate phototherapy or escalate care are guided by the gestational age, the hour-specific TSB, and the presence of risk factors for bilirubin neurotoxicity (below). The presence of hyperbilirubinemia neurotoxicity risk factors lowers the threshold for treatment with phototherapy and the level at which care should be escalated.

Hyperbilirubinemia Neurotoxicity Risk Factors

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



Clinicians can evaluate a patient's need for exchange transfusion using graphs in III.F of the [Clinical Practice Guidelines](#), or using [Bilitool.org](#).

For infants requiring phototherapy, measure the hemoglobin concentration, hematocrit, or complete blood count to assess for the presence of anemia and to provide a baseline in case subsequent anemia develops.

Evaluate the underlying cause or causes of hyperbilirubinemia in infants who require phototherapy by obtaining a DAT in infants whose mother had a positive antibody screen or whose mother is blood group O regardless of Rh(D) status or whose mother is Rh(D)-.

G6PD activity should be measured in any infant with jaundice of unknown cause whose TSB increases despite intensive phototherapy, whose TSB increases suddenly or increases after an initial decline, or who requires escalation of care.

High TSB Develops Before Discharge or Cannot Be Managed Via Home Phototherapy

For hospitalized infants, TSB should be measured within 12 hours after starting phototherapy. The timing of the initial TSB measure after starting phototherapy and the frequency of TSB monitoring during phototherapy should be guided by the age of the child, the presence of hyperbilirubinemia neurotoxicity risk factors, the TSB concentration, and the TSB trajectory.

Escalation of Care (see section III.F of Clinical Practice Guidelines)

Discontinuing phototherapy is an option when the TSB has decreased by at least 2 mg/dL below the hour-specific threshold at the initiation of phototherapy. A longer period of phototherapy is an option if there are risk factors for rebound hyperbilirubinemia (eg, gestational age <38 weeks, age <48 hours at the start of phototherapy, hemolytic disease).

Repeat bilirubin measurement after phototherapy is based on the risk of rebound hyperbilirubinemia.

- Infants who exceeded the phototherapy threshold during the birth hospitalization and (1) received phototherapy before 48 hours of age; (2) had a positive DAT; or (3) had known or suspected hemolytic disease, should have TSB measured 6 to 12 hours after phototherapy discontinuation and a repeat bilirubin measured on the day after phototherapy discontinuation.
- All other infants who exceeded the phototherapy threshold during the birth hospitalization should have bilirubin measured the day after phototherapy discontinuation.
- Infants who received phototherapy during the birth hospitalization and who were later readmitted for exceeding the phototherapy threshold should have bilirubin measured the day after phototherapy discontinuation.
- Infants readmitted because they exceeded the phototherapy threshold following discharge but who did not receive phototherapy during the birth hospitalization and infants treated with home phototherapy who exceeded the phototherapy threshold should have bilirubin measured 1 to 2 days after phototherapy discontinuation or clinical follow-up 1 to 2 days after phototherapy to determine whether to obtain a bilirubin measurement. Risk factors for rebound hyperbilirubinemia to consider in this determination include the TSB at the time of phototherapy discontinuation in relationship to the phototherapy threshold, gestational age <38 weeks, the adequacy of feeding and weight gain, and the other hyperbilirubinemia and hyperbilirubinemia neurotoxicity risk factors.

It is an option to measure TcB instead of TSB if it has been at least 24 hours since phototherapy was stopped.

Reference

Kemper AR, Newman TB, Slaughter JL, Maisels MJ, Watchko JF, Downs AM, Grout RW, Bundy DG, Stark AR, Bogen DL, Holmes AV, Feldman-Winter LB, Bhutani VK, Brown SR, Panayotti GMM, Okechukwu K, Rappo PD, Russel TL. Clinical Practice Guideline Revision: Management of Hyperbilirubinemia in the Newborn Infant 35 or More Weeks of Gestation. *Pediatrics*. 2022 Aug 5;e2022058859.

Referrals and Consultations

Online: [NationwideChildrens.org/Neonatology](https://www.NationwideChildrens.org/Neonatology)

Phone: (614) 722-6200 or (877) 722-6220

Fax: (614) 722-4000

Physician Direct Connect Line for 24-hour urgent
physician consultations: (614) 355-0221 or (877) 355-0221

