

# Management of Hyperbilirubinemia in Infants $\geq$ 35 Weeks Gestation in the Newborn Nursery

## Clinical Practice Guideline

Approved by SSM Health Cardinal Glennon Clinical  
Practice Guideline Committee July 27, 2023

## Evaluation and Treatment of Hyperbilirubinemia in Infants $\geq 35$ Weeks Gestation in the Nursery Clinical Practice Guideline

### Box 1: Abbreviations Index

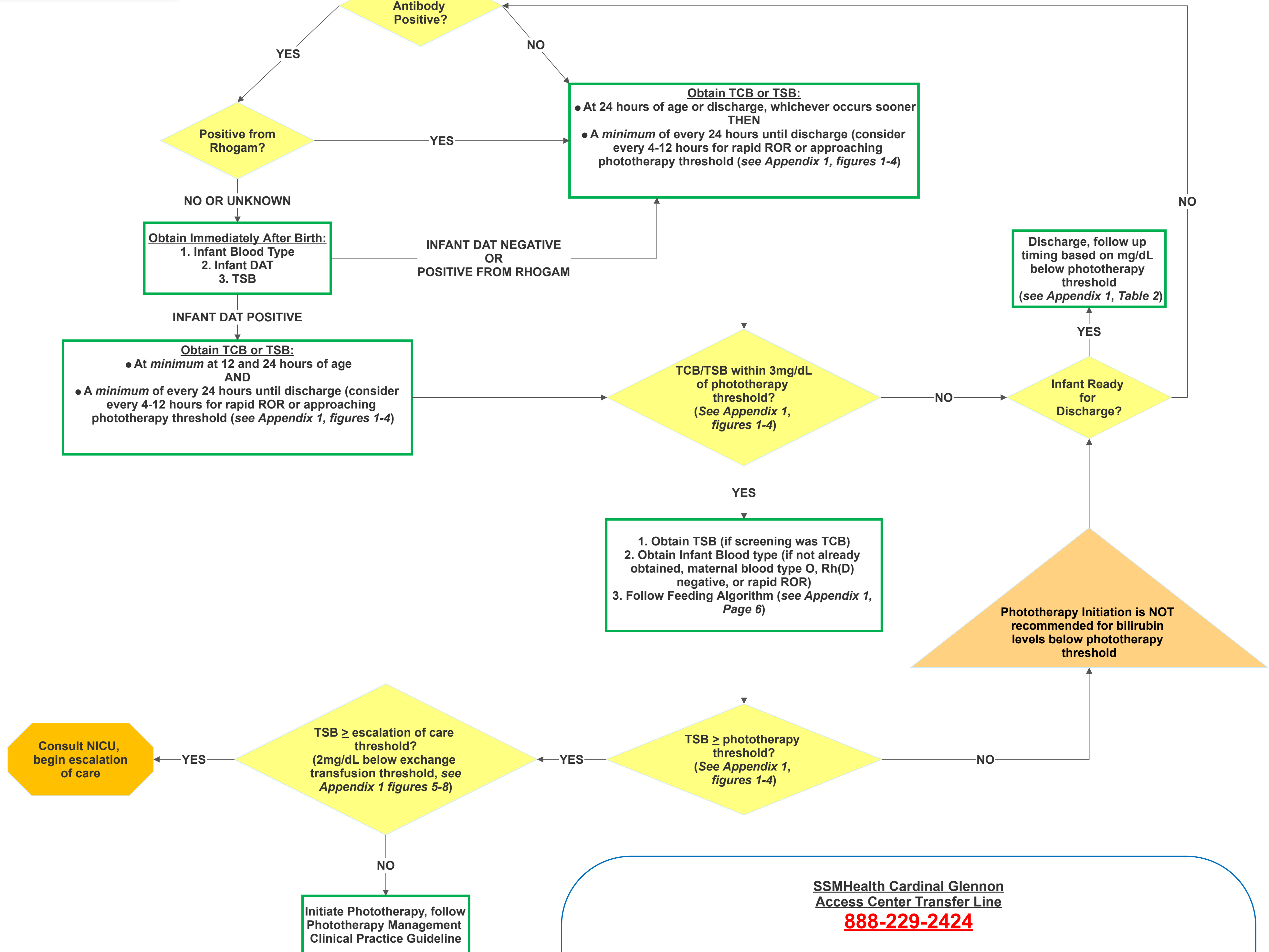
TSB - Total Serum Bilirubin  
TCB - Transcutaneous Bilirubin  
ROR - Rate of Rise  
DAT - Direct Antiglobulin Test

### Inclusion Criteria

- Infants  $\geq 35$  Weeks Gestation
- $\leq 14$  days of age
- Well-appearing

### Box 2: Additional Considerations:

- Obtain TSB if TCB is  $> 15\text{mg/dL}$  OR at or within  $3\text{mg/dL}$  of phototherapy threshold (see Appendix 1)
- Rapid ROR:  $\geq 0.3\text{mg/dL/hr}$  hours 0-24 after birth,  $\geq 0.2\text{mg/dL/hr}$  beyond 24 hours



Phototherapy Initiation is NOT recommended for bilirubin levels below phototherapy threshold

**SSMHealth Cardinal Glennon  
Access Center Transfer Line  
888-229-2424**

### 1. SSMHealth Cardinal Glennon CPG Home

### 2. Resources

- Kemper AR et al. Clinical Practice Guideline Revision: Management of Hyperbilirubinemia in the Newborn Infant 35 or More Weeks Gestation. Pediatrics. 2022; 150(3): e2022058859.
- Widmer K. Evaluation and Management of Neonatal Jaundice. Internal Department Specific Resource, Children's Hospital Colorado: unpublished. 2022.
- American Academy of Pediatrics Value in Inpatient Pediatrics (VIP) and Pediatric Acute Care Network. Learning and Implementing Guidelines for Hyperbilirubinemia Treatment. 2022.

### Owners/Authors (Department)

Revati Narawane, DO (PGY-2, Pediatrics)  
Marielys Collazo-Roman, MD (PGY-2, Pediatrics)  
Rinky Patel, DO (PGY-2, Pediatrics)  
Meredith Barrientez, MD (PGY-3, Pediatrics)  
Margaret Rozler Chen, MD (General Academic Pediatrics)  
Elisa Pincus, MD (General Academic Pediatrics)

Approved by SSM Health Cardinal Glennon Clinical Practice Guidelines Committee July 27, 2023  
Committee Chair: Andrew Ellis, MD (Andrew.Ellis@ssmhealth.com)

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# Appendix 1

## Evaluation and Management of Hyperbilirubinemia and Management of Phototherapy in Infants $\geq 35$ Weeks Gestation

Clinical Practice Guideline, SSM Cardinal Glennon Children's Hospital

### Neurotoxicity Risk Factors

Table 1:

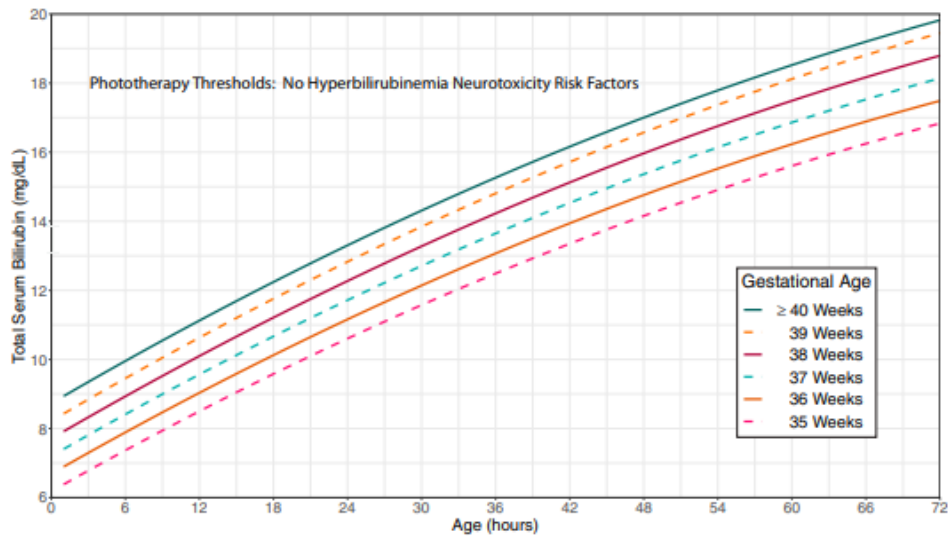
Hyperbilirubinemia Neurotoxicity Risk Factors

Risk Factors
• Gestational age <38 wk and this risk increases with the degree of prematurity <sup>a</sup>
• 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

Courtesy: Kemper AR, et al. Clinical Practice Guideline Revision: Management of Hyperbilirubinemia in the Newborn Infant 35 or More Weeks Gestation. *Pediatrics*. 2022; 150(3):e2022058859.

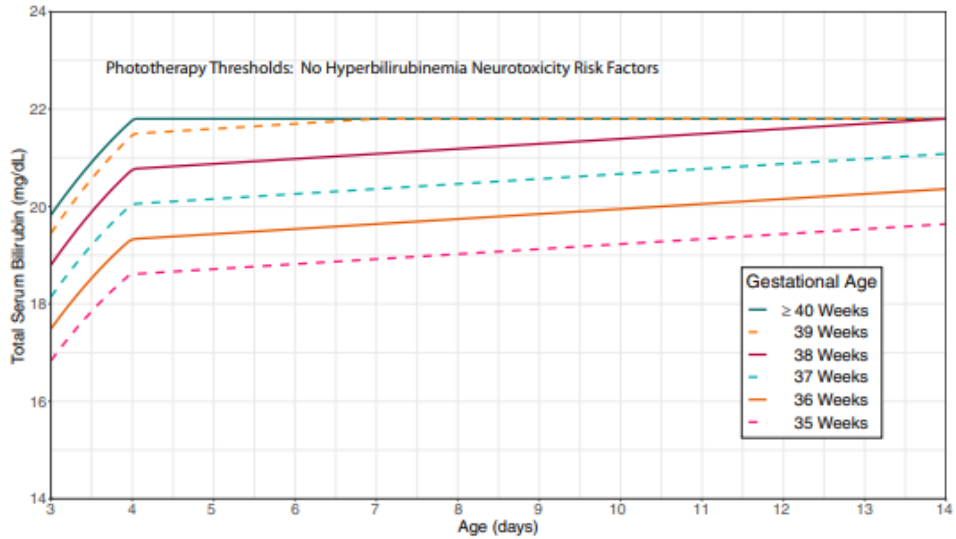
### Phototherapy Thresholds:

Figure 1: 0 to 72 Hours of Life, No Neurotoxicity Risk Factors (see Table 1 above)



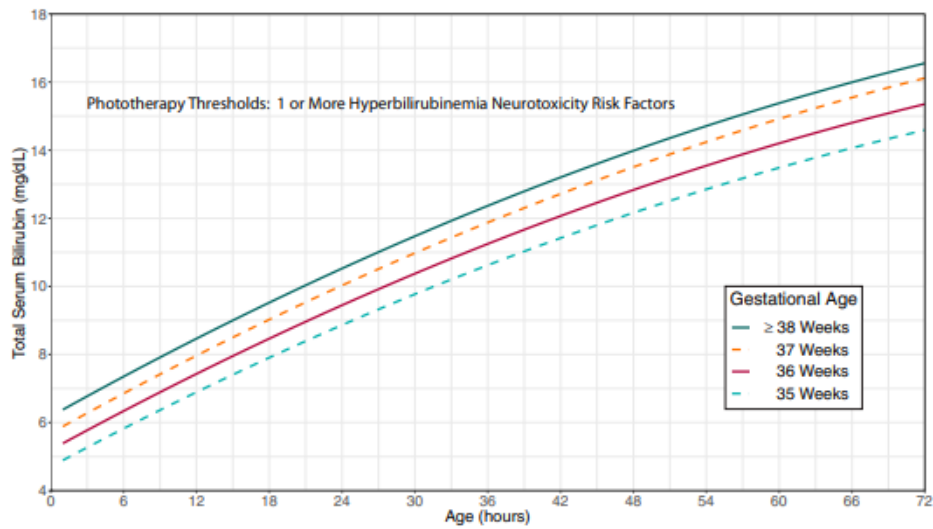
Courtesy: Kemper AR, et al. Clinical Practice Guideline Revision: Management of Hyperbilirubinemia in the Newborn Infant 35 or More Weeks Gestation. *Pediatrics*. 2022; 150(3):e2022058859.

Figure 2: 3 to 14 Days of Life, No Neurotoxicity Risk Factors (see Table 1 above)



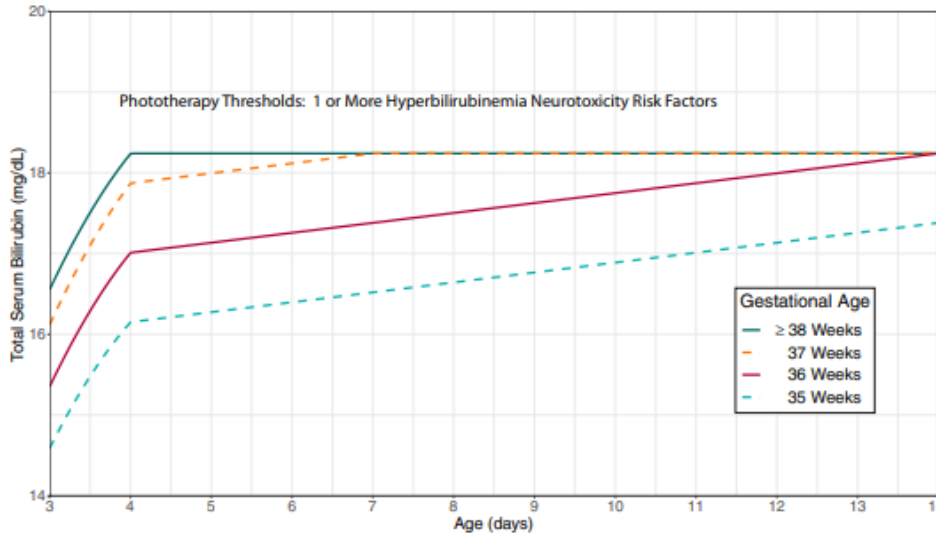
Courtesy: Kemper AR, et al. Clinical Practice Guideline Revision: Management of Hyperbilirubinemia in the Newborn Infant 35 or More Weeks Gestation. *Pediatrics*. 2022; 150(3):e2022058859.

Figure 3: 0 to 72 Hours of Life with One or More Neurotoxicity Risk Factors (see Table 1 above)



Courtesy: Kemper AR, et al. Clinical Practice Guideline Revision: Management of Hyperbilirubinemia in the Newborn Infant 35 or More Weeks Gestation. *Pediatrics*. 2022; 150(3):e2022058859.

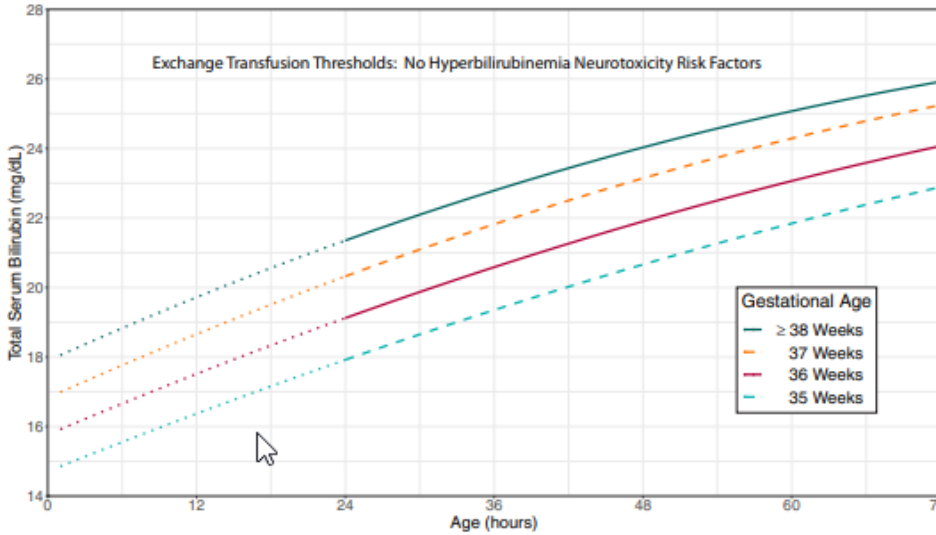
Figure 4: 3 to 14 Days of Life with One or More Neurotoxicity Risk Factors (see Table 1 above)



Courtesy: Kemper AR, et al. Clinical Practice Guideline Revision: Management of Hyperbilirubinemia in the Newborn Infant 35 or More Weeks Gestation. *Pediatrics*. 2022; 150(3):e2022058859.

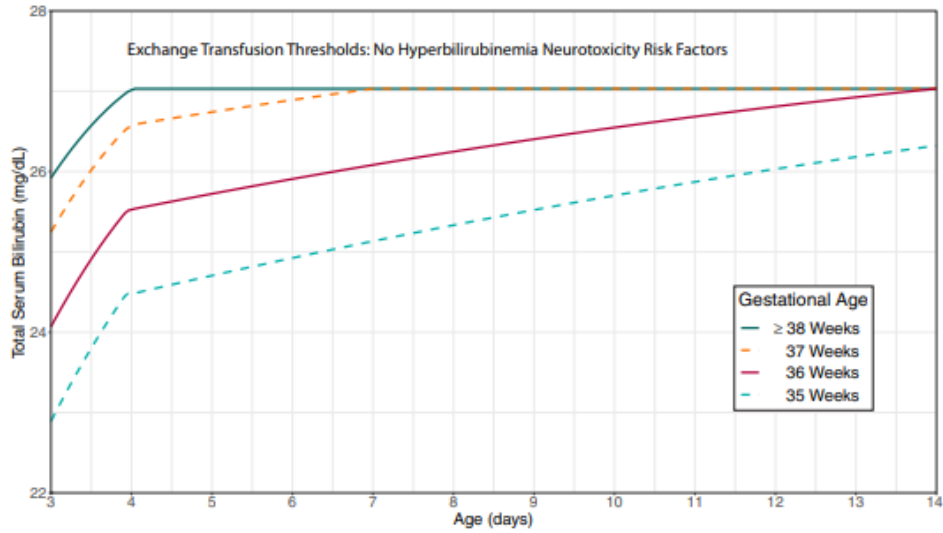
**Exchange Transfusion Thresholds:**

Figure 5: 0 to 72 Hours of Life, No Neurotoxicity Risk Factors (see Table 1 above)



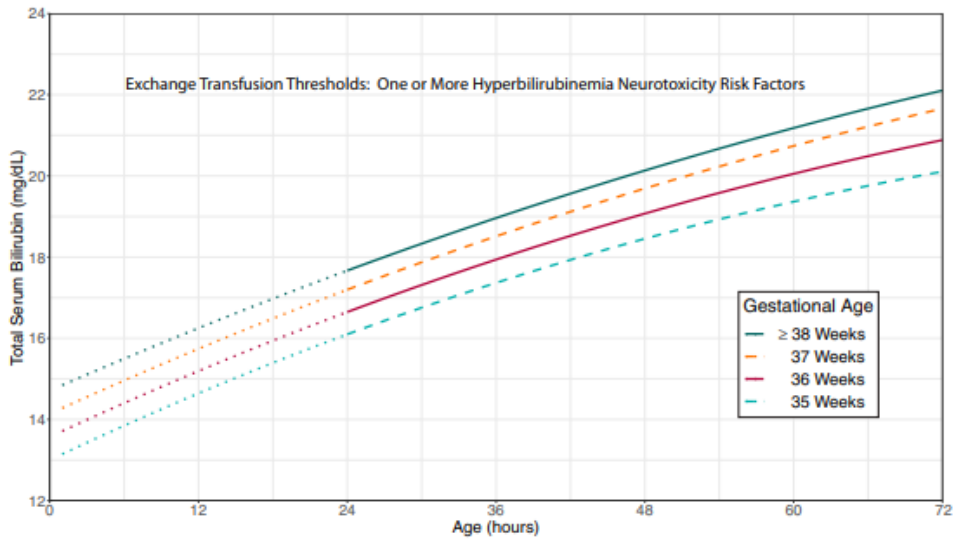
Courtesy: Kemper AR, et al. Clinical Practice Guideline Revision: Management of Hyperbilirubinemia in the Newborn Infant 35 or More Weeks Gestation. *Pediatrics*. 2022; 150(3):e2022058859.

Figure 6: 3 to 14 Days of Life, No Neurotoxicity Risk Factors (see Table 1 above)



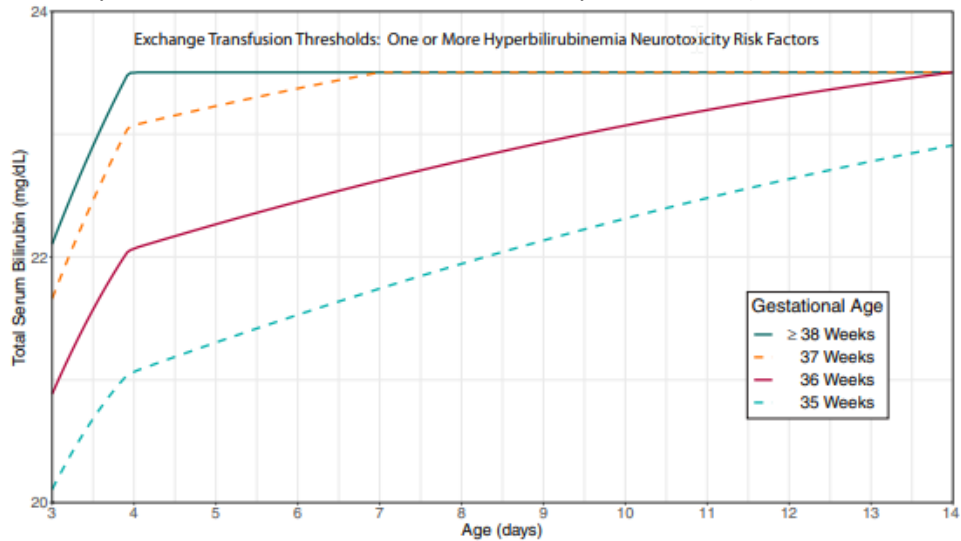
Courtesy: Kemper AR, et al. Clinical Practice Guideline Revision: Management of Hyperbilirubinemia in the Newborn Infant 35 or More Weeks Gestation. *Pediatrics*. 2022; 150(3):e2022058859.

Figure 7: 0 to 72 Hours of Life with One or More Neurotoxicity Risk Factors (see Table 1 above)



Courtesy: Kemper AR, et al. Clinical Practice Guideline Revision: Management of Hyperbilirubinemia in the Newborn Infant 35 or More Weeks Gestation. *Pediatrics*. 2022; 150(3):e2022058859.

Figure 8: 3 to 14 Days of Life with One or More Neurotoxicity Risk Factors (see Table 1 above)



Courtesy: Kemper AR, et al. Clinical Practice Guideline Revision: Management of Hyperbilirubinemia in the Newborn Infant 35 or More Weeks Gestation. *Pediatrics*. 2022; 150(3):e2022058859.

### Follow-Up Timing Recommendations:

Table 2:

Phototherapy threshold minus TcB or TSB		Discharge Recommendations
0.1-1.9 mg/dL	Age <24 hours	Delay discharge, consider phototherapy, measure TSB in 4 to 8 hours
	Age ≥24 hours	Measure TSB in 4 to 24 hours <sup>a</sup> Options: <ul style="list-style-type: none"> <li>• Delay discharge and consider phototherapy</li> <li>• Discharge with home phototherapy if all considerations in the guideline are met</li> <li>• Discharge without phototherapy but with close follow-up</li> </ul>
2.0-3.4 mg/dL	Regardless of age or discharge time	TSB or TcB in 4 to 24 hours <sup>a</sup>
3.5-5.4 mg/dL	Regardless of age or discharge time	TSB or TcB in 1-2 days
5.5-6.9 mg/dL	Discharging <72 hours	Follow-up within 2 days; TcB or TSB according to clinical judgment <sup>b</sup>
	Discharging ≥72 hours	Clinical judgment <sup>b</sup>
≥7.0 mg/dL	Discharging <72 hours	Follow-up within 3 days; TcB or TSB according to clinical judgment <sup>b</sup>
	Discharging ≥72 hours	Clinical judgment <sup>b</sup>

Courtesy: Kemper AR, et al. Clinical Practice Guideline Revision: Management of Hyperbilirubinemia in the Newborn Infant 35 or More Weeks Gestation. *Pediatrics*. 2022; 150(3):e2022058859.

# LIGHT Algorithm for Breastfeeding Infants ≤5 Days Old with Hyperbilirubinemia

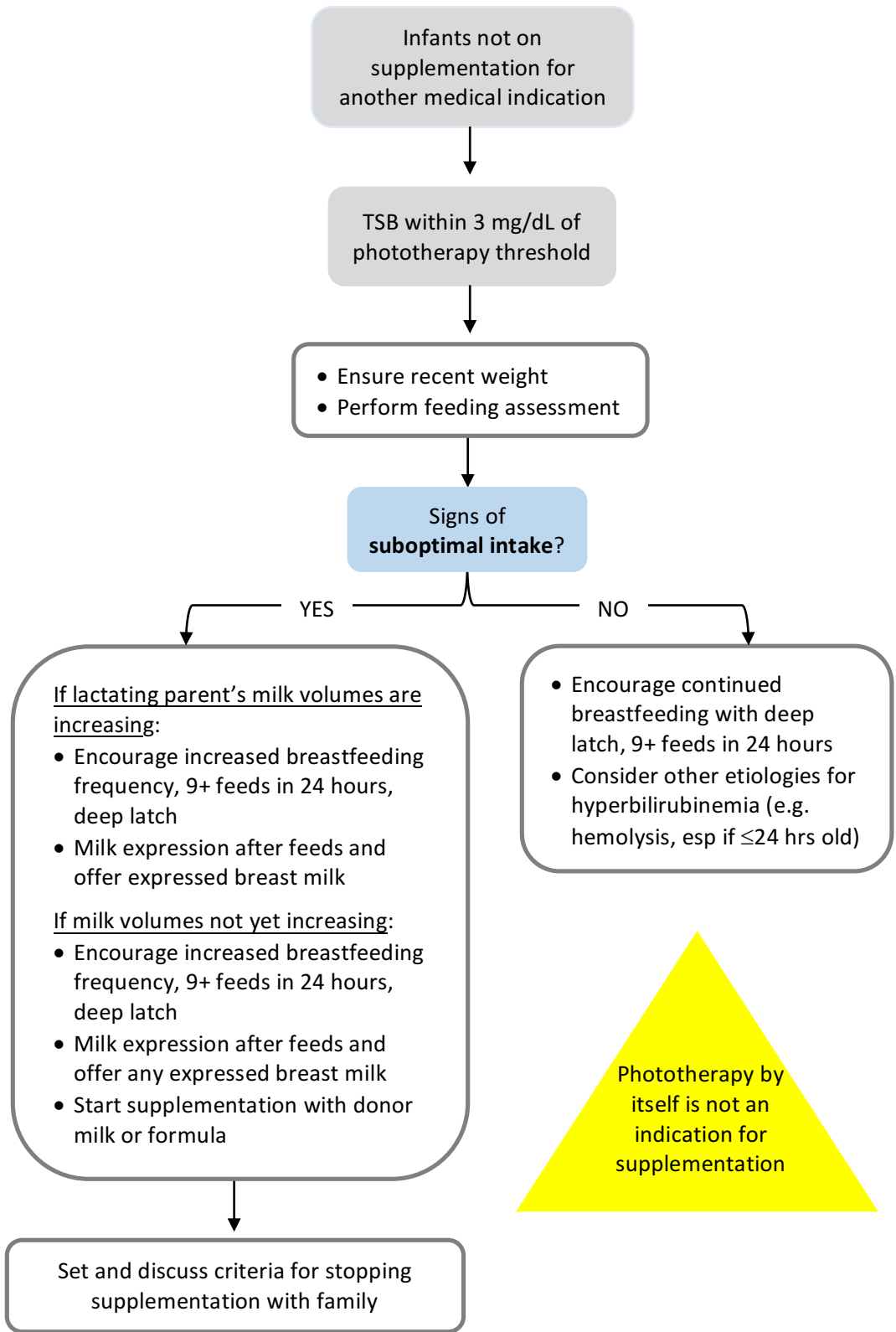
- Feeding Assessment Should Include:**
- Risk factors for delayed lactogenesis
  - Lactation History
  - Maternal breast shape, breast changes
  - LATCH scores
  - Latch depth
  - Feeding frequency
  - Infant transfer at the breast

- Signs of Suboptimal Intake May Include:**
- Ineffective latch and/or suck
  - Sleepy and difficult to wake for feedings
  - Delayed colostrum or milk supply
  - Weight loss >75th %ile on NEWT, esp. after first 24 hrs (<https://newbornweight.org>)
  - Laboratory abnormalities (e.g. hypoglycemia)
  - Ineffective milk transfer
  - Uric acid crystals in urine
  - <4 stools on day 4 or meconium stools on day 5

**Suggested supplementation volumes by ABM<sup>1,2</sup>**

Time (hrs)	mL/feed*
0-24	2-10
24-48	5-15
48-72	15-30
72-96	30-60

\*with expressed breast milk, donor breast milk (if available), or formula



<sup>1</sup> Kellams A, Harrel C, Omage S, Gregory C, Rosen-Carole C. ABM clinical protocol #3: supplementary feedings in the healthy term breastfed neonate, revised 2017. *Breastfeed Med.* 2017;12:188-198. doi:10.1089/bfm.2017.29038.ajk

<sup>2</sup> Flaherman VJ, Maisels MJ; Academy of Breastfeeding Medicine. ABM clinical protocol #22: guidelines for management of jaundice in the breastfeeding infant 35 weeks or more of gestation—revised. *Breastfeed Med.* 2017;12(5): 250–257