Hyperbilirubinemia Management Guideline - OHMG Pediatric Hospitalists

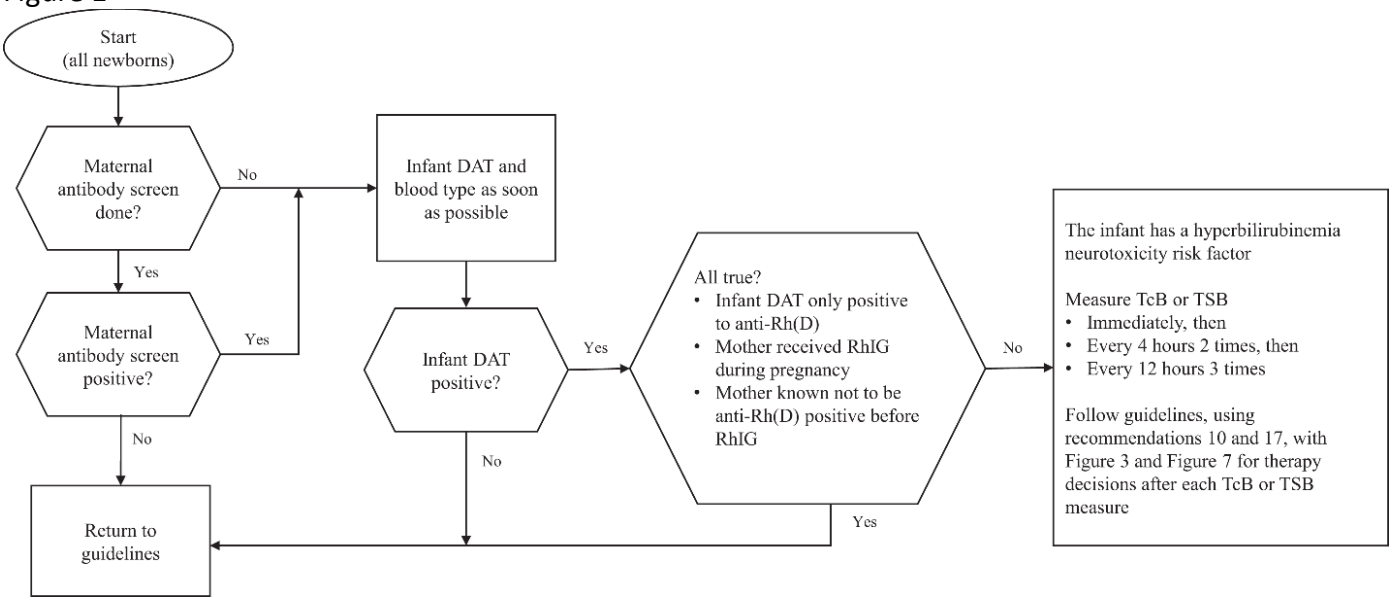
Preface

As a practice we generally agree with the 2022 AAP Clinical Practice Guideline on Management of Hyperbilirubinemia in the Newborn Infant 35 or More Weeks of Gestation.

Below are several recommendations to adapt the AAP Guideline to our practice at WPH/APH.

1. **Screening of babies who are Coombs+ (DAT+)**
    a. Figure 1 from the guideline (below) provides guidance on screening babies who are DAT +. The goal of this guidance is to (a) promote recognition of DAT+ as a potential marker for hemolytic disease/neurotoxicity risk factor, and (b) clarify that babies who are DAT+ only because a mother received RhoGam are not at increased risk.
    b. Issues:
        1. The OH lab does not identify the specific antibody causing the DAT + result, so we don't know if it is caused exclusively by anti-Rh(D) antibodies.
        2. The recommendation for aggressive early screening with TcB is not supported by evidence showing it leads to earlier recognition of disease or better outcomes.
    c. **WPH/APH Practice Recommendation**: We do not recommend following the new guidelines on this issue, but instead continue our practice prior to the new guidelines for DAT+ babies, specifically (a) recognize that DAT+ may be a risk factor for significant hyperbilirubinemia, (b) be vigilant about visible jaundice in the first day of life and check a level in any baby who appears jaundiced in the first 24 hours, and (c) for babies who are DAT+, check TcB at 12 hours of life and then schedule subsequent checks based on individualized assessment of clinical course, risk factors and bilirubin results (i.e., do bili checks as frequently as you think is best for baby, which could be more or less frequent than q12h).

Figure 1



2. **Screening/Monitoring for Hyperbilirubinemia**
    a. We agree with the 2022 AAP Guideline and implement as follows:
        1. All newborns should be assessed for jaundice risk factors and neurotoxicity risk factors.

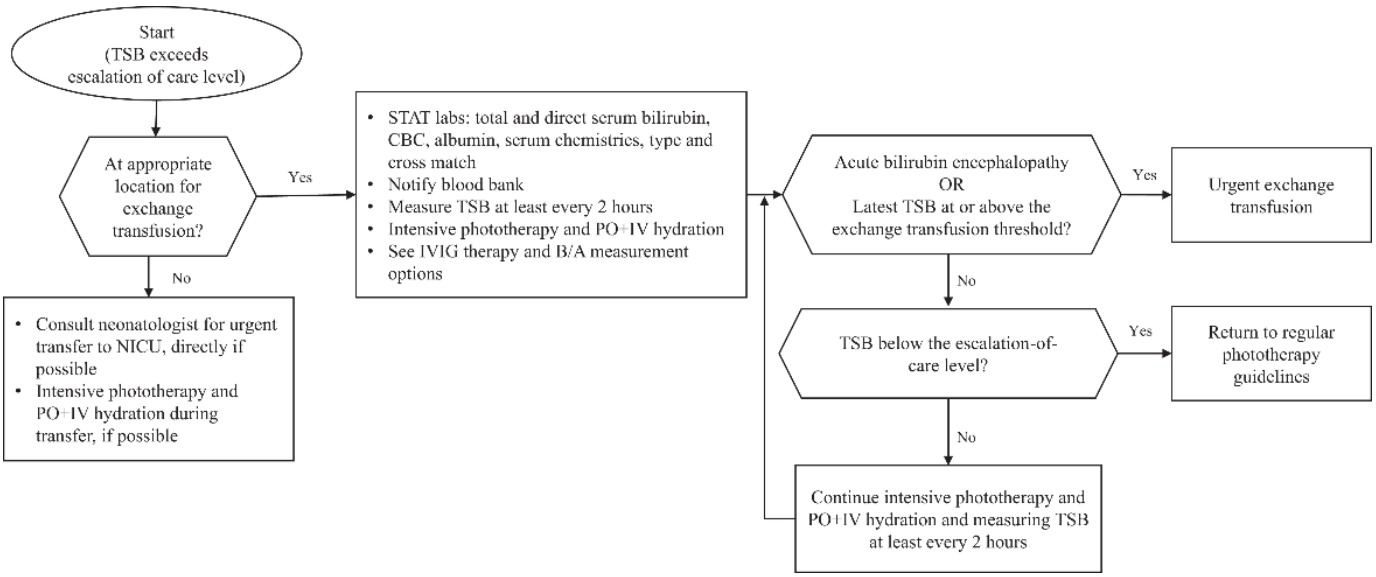
2. All infants should be screened for jaundice using TcB. TsB should be drawn if TcB exceeds or is within 3mg/dL of the phototherapy threshold or TcB ≥ 15 mg/dL.
3. TcB/TsB in the first hours of life may be indicated if a baby appears jaundiced or there are other reasons to raise clinical suspicion for significant early-onset hyperbilirubinemia.

3. Phototherapy treatment

a. We agree with the AAP guideline regarding hyperbilirubinemia treatment thresholds and guidance on delivery of phototherapy, including criteria for home phototherapy.

4. Escalation of care

a. In accordance with the AAP Guideline, escalation of care should be considered if TsB is ≤ 2mg/dL from exchange transfusion threshold.
b. WPH/APH Practice Recommendation:
    1. If APH ED, outside ED, or PCP call for admission for hyperbilirubinemia with a <u>TSB ≤ 2 from exchange transfusion threshold, admit directly to the NICU.</u>
        1. Please get the NICU provider on the call via transfer center if from outside ED/PCP.
        2. APH ED can call to admit to NICU directly.
        3. If patient coming from PCP office, you can either direct them to call the NICU through transfer center or call the NICU team yourself to arrange placement for infant prior to calling PCC for bed assignment.
    2. If APH ED, outside ED, or PCP call for admission for hyperbilirubinemia with a <u>TSB > 2 from exchange transfusion, admit to the general pediatric floor</u> for intensive phototherapy.
    3. If < 3 from exchange transfusion threshold and it has been > 2 hours since last TSB check, then…
        1. Obtain STAT total and direct serum bilirubin upon arrival to the floor
        2. Start intensive phototherapy
        3. Consider starting IVF
        4. Consider obtaining CBC, albumin, serum electrolytes
        5. If repeat TSB recheck < 2 from exchange transfusion, call NICU to transfer care to them
        6. If transferring to NICU, obtain labs and start IVF if not already done
        7. If TSB recheck > 2 from exchange transfusion, okay to de-escalate care per AAP guideline
    4. Consider IVIG in infants with isoimmune hemolytic disease who have a poor response to phototherapy and concern for ongoing hemolysis and increasing TSB. This may be given before reaching the escalation threshold and may be given on the floor. Consult the NICU prior to giving on the floor.
    5. De-escalation of care for infants admitted/transferred to the NICU: Infants who are > 3 from exchange transfusion with improving TSB on intensive phototherapy may be transferred to the APH general pediatric floor for continue monitoring.



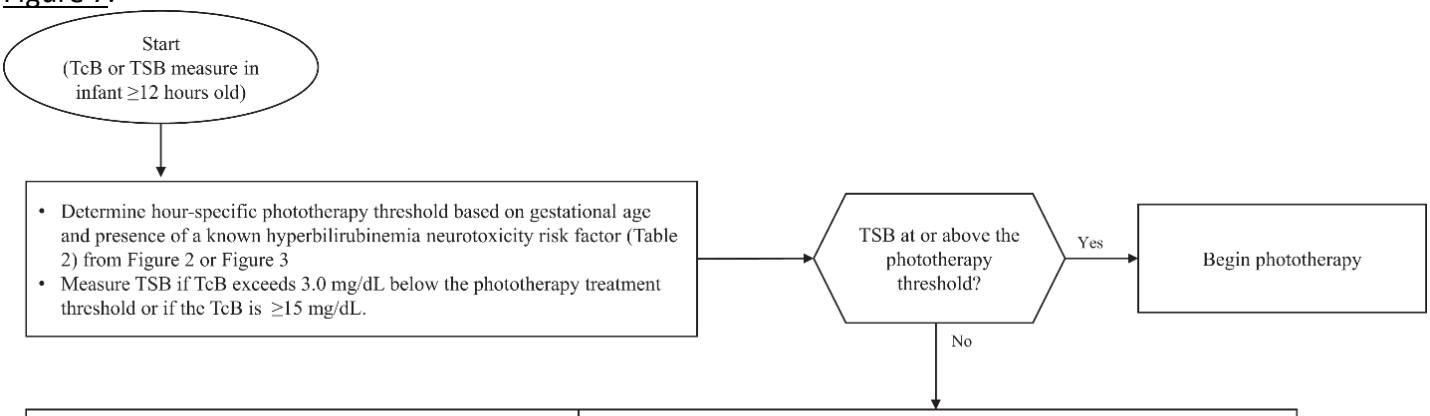
Approach to escalation of care. The escalation-of-care threshold is 2 mg/dL below the exchange transfusion threshold. IVIG, intravenous immune globulin; B/A, bilirubin to albumin ratio.

5. **Discontinuing phototherapy**
    a. The new guidelines recommend stopping phototherapy once the TsB is >2 below the treatment threshold at which phototherapy was initiated.
    b. Issues:
        1. This can create an issue when phototherapy is started during the birth hospitalization on the first 1-2 days of life, when the treatment threshold is relatively low. For example, if the treatment threshold is 9, it's probably not reasonable to continue treatment until the TsB is <7.
        2. The authors of study that is the basis for this recommendation acknowledged this problem and specifically recommended using the "2 below" rule only for babies readmitted for phototherapy who have TsB levels in the teens/20s.
    c. **WPH/APH Practice Recommendation**: Follow guideline on this issue for babies readmitted for phototherapy. For babies who receive phototherapy during the birth hospitalization use clinical judgement and individualized assessment of risk of rebound to decide when to stop phototherapy (gestational age, age at start of phototherapy, etiology/hemolytic disease, response to phototherapy, etc).
    d. Note: There is a document on hospitalpeds.com under Nursery Clinical Tools entitled "Stopping Phototherapy" that goes into more detail.

4. **Discharge follow-up recommendations**
    a. Figure 7 in the new guidelines (below) recommends bilirubin follow-up screening within 2 days for every baby whose pre-discharge bilirubin is within 5.4 of phototherapy level. It recommends even more immediate follow-up for pre-discharge bilirubin the closer it is to the phototherapy level. This creates a challenge for follow-up, particularly on weekends and holidays with the general lack of follow-up options.
    b. **WPH/APH Practice Recommendation**: Generally follow the guidelines in Table 7, but recognize that this is expert advice and not evidence-based, so it is reasonable to use your clinical judgement regarding adequate follow-up, particularly for babies who are ≥ 3.5 away from the phototherapy threshold. You could also consider checking an additional pre-discharge bili to help decision making by getting another data point, though this may delay discharge.

5. 4. **Checking for rebound hyperbili after phototherapy**
    a. a. The guidelines recommend checking for rebound on every baby who receives phototherapy during the birth hospitalization 6-12 hours after phototherapy is stopped. A member of the guidelines committee told us that this recommendation comes from the fact that there is no good evidence-based approach for when to stop phototherapy in this scenario, for the reasons described in #3 above. The committee therefore created this fairly conservative recommendation to "be on the safe side".
    b. **WPH/APH Practice Recommendation**: Decision making for checking for rebound can be made on a case-by-case basis, taking into account individual baby's risk factors (gestational age, age at start of phototherapy, etiology/hemolytic disease, response to phototherapy, etc).

Figure 7.



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[a] Options: • Delay discharge and consider phototherapy • Discharge with home phototherapy if all considerations in the guideline are met • Discharge without phototherapy but with close follow-up
2.0-3.4 mg/dL	Regardless of age or discharge time	TSB or TcB in 4 to 24 hours[a]
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[b]
	Discharging ≥72 hours	Clinical judgment[b]
≥7.0 mg/dL	Discharging <72 hours	Follow-up within 3 days; TcB or TSB according to clinical judgment[b]
	Discharging ≥72 hours	Clinical judgment[b]

[a]Use clinical judgment and shared decision making to determine when to repeat the bilirubin measure within this 4 to 24 hour time window.
[b]Clinical judgment decisions should include physical examination, the presence of neurotoxicity risk factors, feeding adequacy, weight trajectory, and family support.