

Protocol Type: Postpartum	Date Approved: October 13, 2020
Sub-Category: Neonatal	Date of Most Recent Revision: October 13, 2020
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Introduction

This is the first protocol intended to describe how Diversity Midwives will manage neonatal jaundice. Diversity has acquired 2 portable transcutaneous bilimeters in order to facilitate the assessment of newborns displaying signs and symptoms of jaundice.

This protocol will help guide the management of jaundice and the utilization of the Bilimeter and should be used in conjunction with the *AOM CPG 18: Management of Hyperbilirubinemia* and the *AOM Bili-Tool Resource for Midwives* in order to standardize management.

Client care

ANTENATAL:

- Provide information regarding neonatal jaundice; clinical presentation and bilirubin
- Review and consider screening for risk factors (see Appendix A) and document any risk factors as well as ICD on chart.
- When discussing choice of birth place or discharge options from the hospital, include postpartum considerations for jaundice testing based of the following protocol.
- We will offer all clients their choice of screening by clinical symptoms, screening by TsB blood test, or screening by TcB bilimeter.

INITIAL SCREENING:

1. **For clients who elect to stay in hospital for > 24 hours in the postpartum**, jaundice screening will be done in hospital routinely. This screening is typically done around 24 hours with the NBSO and CCHD. Most clients who stay in hospital will have routine total serum bilirubin (TsB) screening unless they decline after ICD. If baby Dat+ baby to have TsB at 12 hours and repeat at 24 hours. Midwives to leave orders and write pager number for nurses to page with abnormal results.
2. **For babies born at home or discharging early from hospital**, initial screening to be offered by TcB bilimeter screening at first home visit around 24 hours. Taking into consideration the baby's risk zone, if TcB is within 50µmol/L of phototherapy line, TsB should be drawn and taken to lab for processing. Otherwise, use AOM Bili-tool to determine follow-up management. (Note bilimeter gives reading in mg/dL and needs to be converted to µmol/L to use the app).

- 3. For babies born at home to a type O blood birthing person**, midwife to consider drawing cord blood in a purple tube and sending it to the lab following birth to determine baby ABO/DAT status. Blood can be taken to General, patient health card number taken to registration before taking to the lab for processing. If baby is DAT+, midwife should offer TcB or TsB at 12 hours if possible and day 1 visit should be timed around early Jaundice screening.

FOLLOW UP TESTING:

For low risk babies who require repeat testing but are below the phototherapy line.

It is reasonable to offer repeat screening by TcB and follow up with TsB if required as above, or to offer TsB as first line repeat testing.

Taking home sample TSB to hospital

Protect sample from light and transport as quickly as possible. Take baby's OHIP number and register baby before taking to the lab for processing. Leave pager number with lab and ask for results STAT.

Baby's Requiring Phototherapy

When TsB level within Phototherapy range, consult with pediatrician on call at delivering hospital or the General if home birth. Parent should be told to take clothing and supplies for a 24-48 hour stay.

References

1. Maisels MJ, Ostrea EM, Touch S, Clune SE, Cepeda E, Kring E, Gracey K, Jackson C, Talbot D, Huyang R. Evaluation of a new transcutaneous bilirubinometer. *Pediatrics*. 004;113:1628-1635.
2. Provincial Council for Maternal & Child Health & Ministry of Health and Long-Term Care. Clinical Pathway Handbook for Hyperbilirubinemia in Term and Late Pre-Term Infants (≥ 35 weeks). 2017;1–33. Available from: http://www.health.gov.on.ca/en/pro/programs/ecfa/docs/qbp_jaundice.pdf
3. Association of Ontario Midwives. Management of Hyperbilirubinemia in healthy term and late preterm neonates, 2019. Clinical Practice Guideline 18. <https://members.ontariomidwives.ca/public/CPG-Management-of-Hyperbilirubinemia-PUB.pdf>
4. Association of Ontario Midwives. Clinical Pathway Manual for Midwifery Hyperbilirubinemia screening and Management of Phototherapy, 2019. <https://www.ontariomidwives.ca/sites/default/files/Hyperbilirubinemia-Clinical-Pathway-Manual-PUB.pdf>
5. Canadian Pediatric Society. (2018) Guidelines for detection, management and prevention of hyperbilirubinemia in term and late preterm newborn infants. Position Statement. <https://www.cps.ca/en/documents/position/hyperbilirubinemia-newborn>

APPENDIX A – Risk factors for severe hyperbilirubinemia

TABLE 1

Risk factors for the development of severe hyperbilirubinemia

Risk Factor	Approximate odds ratio in comparison with the rest of the population
Visible jaundice at younger than 24 h	Unclear
Visible jaundice before discharge at any age	Unclear
Shorter gestation (less than 38 weeks)	For 36 weeks, 1.9 to 7.7
Previous sibling with severe hyperbilirubinemia	4.8
Visible bruising	2.6
Cephalhematoma	3.6
Male sex	1.3 to 1.7
Maternal age older than 25 years of age	2.6
Asian or European background	5.2 or 1.2, respectively
Dehydration	Depends on severity
Exclusive and partial breastfeeding	Very variable in the literature

From Canadian Pediatric Society. (2018) Guidelines for detection, management and prevention of hyperbilirubinemia in term and late preterm newborn infants. Position Statement.

<https://www.cps.ca/en/documents/position/hyperbilirubinemia-newborn>

Other risk factors for bilirubin encephalopathy include (from AOM bili-tool):

- Blood group incompatibility or isoimmune hemolytic disease (DAT +)
- Ethnic group at risk for G6DP deficiency (African, Mediterranean, Middle Eastern or South Asian origin)
- Asphyxia (Apgar 0-3 beyond 5 min + cord pH < 7.0)
- Current and significant lethargy (impacting feeding ability and not clearly related to maternal/neonatal medication)

- Unresolved temperature instability (requiring external warming at time of measurement)
- Sepsis (On antibiotics for clinical signs of sepsis, not simply because of maternal GBS status)
- Acidosis (current stats, not just low cord pH)
- Albumin < 30 g/L (if measured for clinical reason)

Appendix B - AOM Clinical pathway

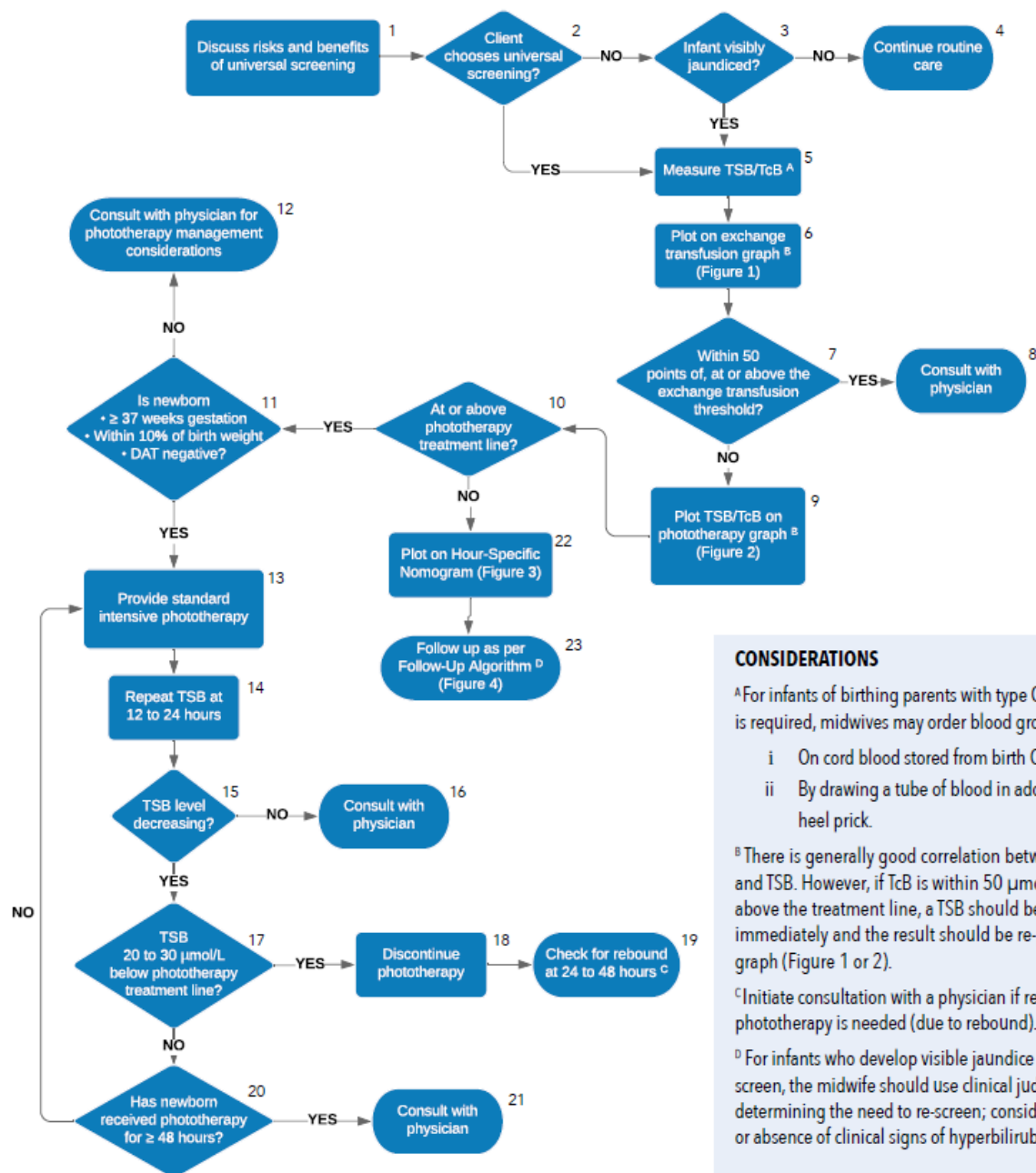
CLINICAL PATHWAY FOR MIDWIFERY HYPERBILIRUBINEMIA SCREENING AND MANAGEMENT OF PHOTOTHERAPY

This clinical pathway does not apply in the following circumstances:

- Infants who are < 35 weeks' gestation
- Infants with visible jaundice < 24 hours
- When isoimmunization has been identified in the birthing parent during the prenatal or intrapartum period
- Infants who are unwell

For any of these criteria, consultation with a physician is warranted.

TSB = Total Serum Bilirubin (unconjugated/indirect bilirubin + conjugated/direct bilirubin)
 TcB = Transcutaneous Bilirubin
 DAT = Direct Anti-Globulin Test (i.e., Coombs)



CONSIDERATIONS

^AFor infants of birthing parents with type O blood. If a TSB is required, midwives may order blood group and DAT:

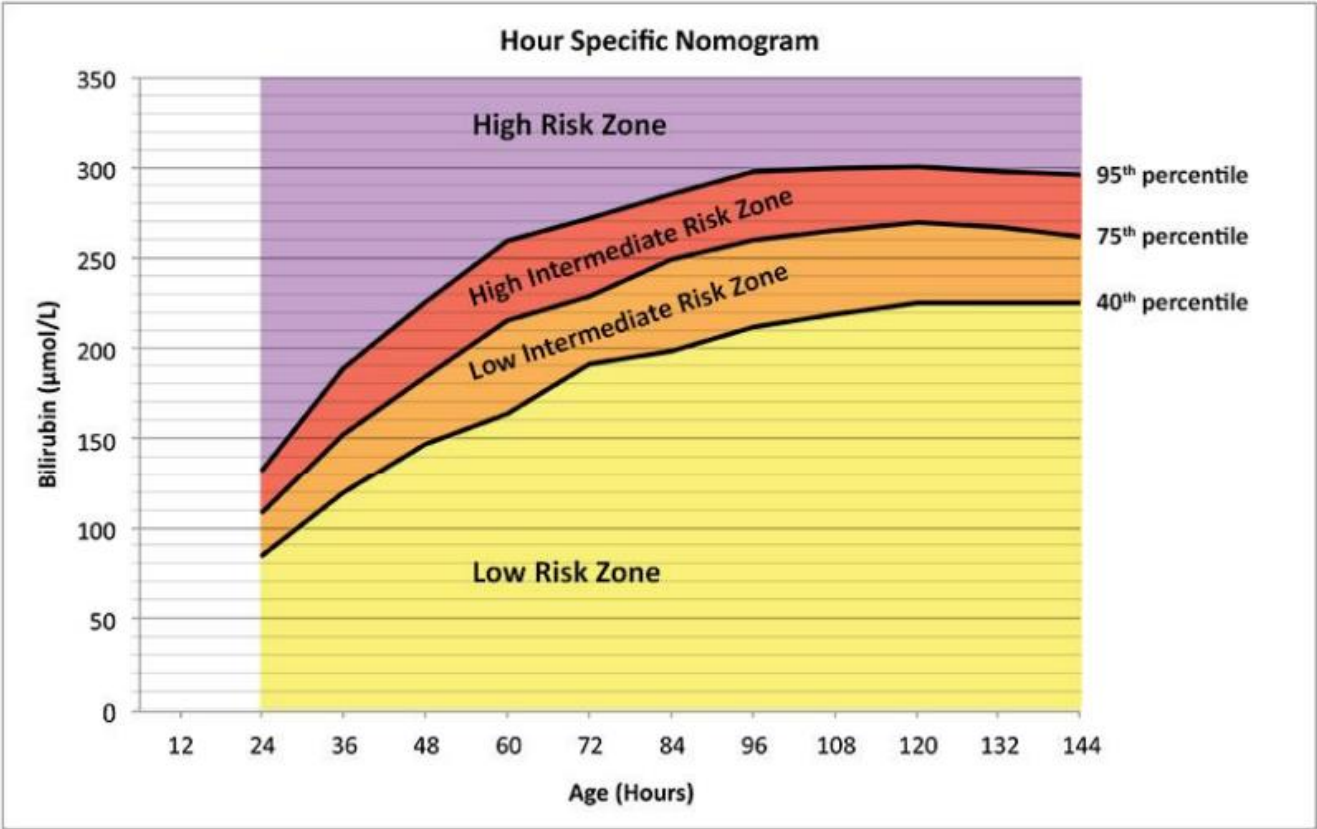
- i On cord blood stored from birth OR
- ii By drawing a tube of blood in addition to TSB by heel prick.

^B There is generally good correlation between TcB and TSB. However, if TcB is within 50 µmol/L of, at or above the treatment line, a TSB should be performed immediately and the result should be re-plotted on the graph (Figure 1 or 2).

^CInitiate consultation with a physician if repeat phototherapy is needed (due to rebound).

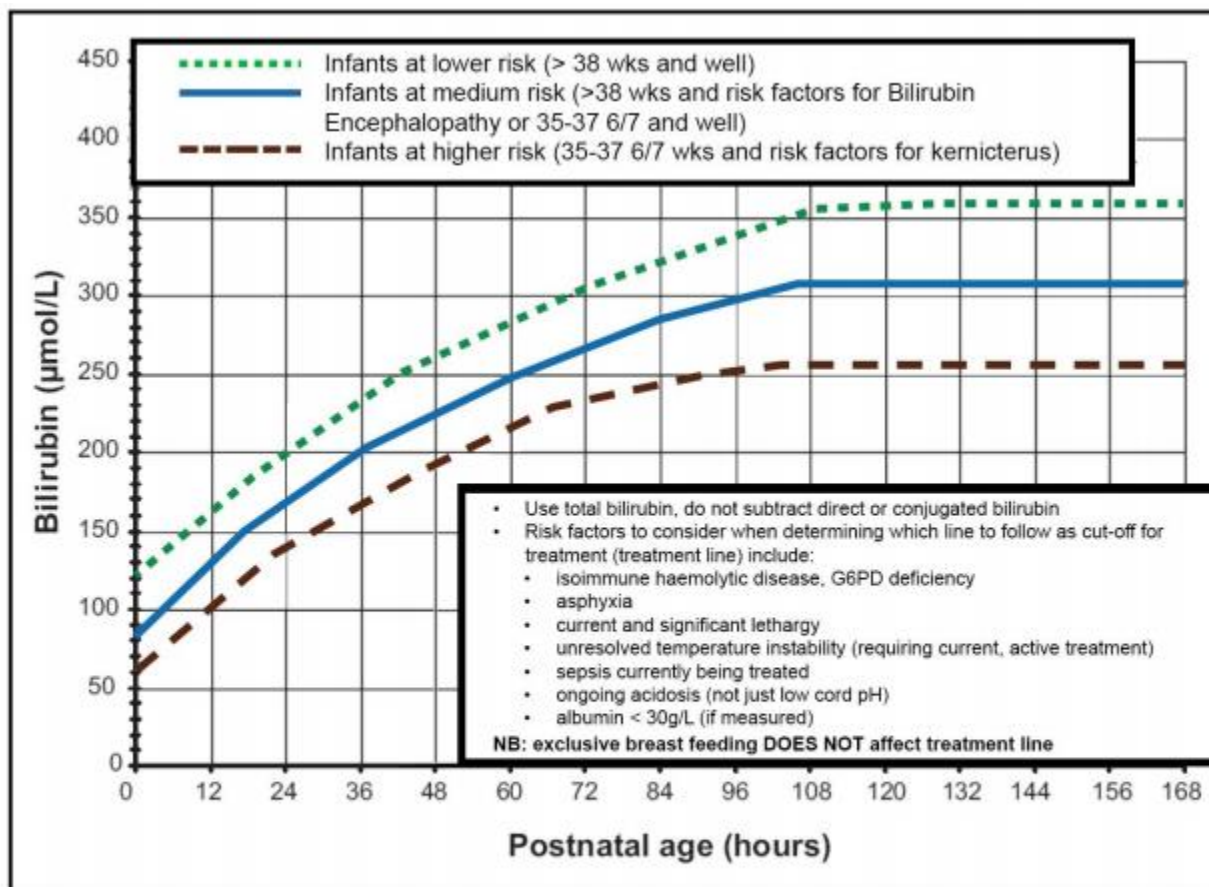
^D For infants who develop visible jaundice after initial screen, the midwife should use clinical judgement in determining the need to re-screen; consider the presence or absence of clinical signs of hyperbilirubinemia.

Appendix C - Hour-specific nomogram



From Provincial Council for Maternal & Child Health & Ministry of Health and Long-Term Care

Appendix 4 - Phototherapy graph



Adapted with permission from the Champlain Maternal Newborn Regional Program (Champlain Maternal Newborn Regional Program, 2012)