

ABM Clinical Protocol #22: Guidelines for Management of Jaundice in the Breastfeeding Infant 35 Weeks or More of Gestation—Revised 2017

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A central goal of The Academy of Breastfeeding Medicine is the development of clinical protocols free from commercial interest or influence for managing common medical problems that may impact breastfeeding success. These protocols serve only as guidelines for the care of breastfeeding mothers and infants and do not delineate an exclusive course of treatment or serve as standards of medical care. Variations in treatment may be appropriate according to the needs of an individual patient.

Purpose

1. To provide guidance in determining whether and how breastfeeding may or may not be contributing to infant jaundice.
2. To review evidence-based strategies for ameliorating jaundice in the breastfeeding infant.
3. To provide protocols for supporting breastfeeding while infants are being evaluated and/or treated for jaundice.

Biologic Basis for Jaundice in the Newborn and Its Relationship to Breastfeeding

Some comprehensive reviews of bilirubin metabolism and jaundice in the newborn are listed in the references for a more complete discussion of the biology and pathobiology of jaundice in the newborn and its relationship to breastfeeding.^{1–3} Although the management of breastfeeding and jaundice varies in different countries,⁴ the following principles and recommendations should apply universally.

Hyperbilirubinemia of the newborn

Virtually all newborns have some elevation of their total serum bilirubin (TSB) (>90% of which is unconjugated or indirect reacting) relative to normal adult values, which are $\leq 17 \mu\text{mol/L}$ ($\leq 1.0 \text{ mg/dL}$).⁵ The catabolism of heme by heme oxygenase (HO) produces biliverdin. Biliverdin is reduced by biliverdin reductase to unconjugated bilirubin, which is conjugated in the liver and excreted through the gut. Newborns have higher TSB levels because of a combination of three factors: increased production of bilirubin due to postnatal heme degradation; decreased uptake and conjugation of bilirubin due to developmental hepatic immaturity; and increased intestinal reabsorption of bilirubin. In the first week of life, more than 80% of newborns appear jaundiced^{6,7} and,

depending on the racial and sociocultural population mix, about 75% have a transcutaneous bilirubin (TcB) of $>100\text{--}150 \mu\text{mol/L}$ ($>6\text{--}9 \text{ mg/dL}$) by 96 hours.^{8–10} Bilirubin is antioxidant and may protect infants from the relatively hyperoxygenic environment after birth. The term physiologic jaundice is often used to describe newborns with a TSB well above normal adult levels, but not attributable to a specific cause such as hemolytic disease; however, such terminology may be inappropriate because having an unknown etiology does not necessarily mean that a condition is physiologic.¹¹

Breastfeeding and jaundice

Although some early studies^{12,13} reported no differences in TSB concentrations between breastfed and formula-fed infants, subsequent studies using larger sample sizes and more robust research design demonstrated a strong association between hyperbilirubinemia and breastfeeding compared with formula feeding, especially when breastfeeding was exclusive.^{14–22} Nonetheless, in comparison with previous data,²³ Buitert et al.'s²⁴ study of the relationship between stool production and jaundice in healthy breastfed or formula-fed newborns found significantly less stool production in formula-fed infants and no difference in stool production or TcB concentrations in the first 4 days between breastfed and formula-fed infants. Based on this body of evidence, two broad categories of the association between breastfeeding and jaundice have been described. Jaundice, which occurs in the first week in association with ongoing weight loss, has been termed breastfeeding jaundice, breastfeeding-associated jaundice, breast-nonfeeding jaundice, or starvation jaundice.²⁵ However, as this jaundice is almost always associated with low enteral intake rather than breastfeeding per se, in this protocol, it will be called suboptimal intake jaundice. Jaundice that persists past the onset of robust weight gain is known as breast

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