



# The Yellow Monster: A look at jaundice

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**W**hen frustrated, I turn to clichés. This is how the phrase *The Yellow Monster* came to be used at dinner table conversations with my family.

I spend most of my days with clients who need professional assistance to successfully breastfeed their babies. By the end of each week, this means I can be weighed down and feel the burdens they also carry. When my family discusses the week's happenings, I take a turn to share the general challenges mothers in my practice face, respecting clients' confidentiality. These dinner table topics have led to a duo of elementary-school-age boys who are very well educated in the mechanics of lactation. My husband and I have developed verbal shorthand for most common breastfeeding obstacles. This allows me to vent while not boring the children.

Now, each time that a mother is asked to supplement or withhold breastfeeding due to jaundice I simply say that *The Yellow Monster*

has reared its ugly head again. While this complicates the "monsters aren't real" policy my husband and I have with the children, the lighthearted poke at this very real problem helps make it somehow less menacing. Unfortunately for new mothers in the United States, *The Yellow Monster* cannot be tamed so easily and the effects reach much further than our family's nightly dinner conversation.

## Jaundice: The Basics

Hyperbilirubinemia, or jaundice, affects well over half of newborns. At birth all newborns have an abundance of red blood cells that must be eliminated. One byproduct of this breakdown is the production of bilirubin, a yellow pigment that is absorbed into the baby's blood and tissues. As the bilirubin is absorbed the levels rise and the infant may appear to have a yellowish hue. Over the course of several days or weeks this bilirubin will be conjugated (broken down) by the infant's liver into a soluble form and excreted in the stools.

Jaundice is diagnosed more often in breastfed infants. Bilirubin levels tend to stay higher for several weeks when compared to artificially-fed babies. This is yet another protective effect of breastfeeding. The presence of bilirubin in moderate levels serves as an antioxidant, reducing free radicals in the newborn infant's system. One study of premature infants found that those who maintained moderate bilirubin levels experienced a lower risk of developing serious infections. Nature has a purpose in normal physiological jaundice<sup>3</sup>.

## Why the Panic?

Despite the research supporting the benefits of moderate bilirubin levels, there does exist a risk to the infant when bilirubin levels rise unchecked. High bilirubin levels or levels that are rising too quickly, i.e., faster than 5 milligrams per deciliter (mg/dl) per day can be an early warning sign for a variety of concerns including insufficient intake, intestinal defects, metabolic disorders, liver disease,



and hypothyroidism. In addition to serving as an indicator of complicating factors, the rising levels themselves carry a risk. When levels exceed 25-30 mg/dL the incidence of encephalopathy and kernicterus, which can lead to brain damage, rise dramatically. These conditions occur as a result of bilirubin staining the brainstem and exhibiting a toxic effect. These effects can be permanent if treatment is not sought. Most studies estimate 1-2 cases of kernicterus will develop for every 100,000 newborns<sup>2,3</sup>.

**Editor's note:** *Encephalopathy refers to any disease of the brain that alters brain function or structure. This can be caused by an infection, exposure to a toxic substance, and a metabolic dysfunction, among others. Kernicterus refers to a form of brain damage caused by excessive jaundice.*

### When Jaundice Hits Home

If a new mother is told that her infant has a high bilirubin level, that a further rise could be detrimental to her infant's health, and that temporary weaning with phototherapy will bring the levels back down, the decision has already been made. New mothers will all choose their newborn's safety. If that same mother has the opportunity to review the American Academy of Pediatrics (AAP) guidelines and possibly get a second opinion, she may have a very different answer. If you're among those of us who failed to pack the AAP manual and entire La Leche League resource library with us on our way to the hospital, here's the short of it.

### When in doubt, increase the frequency of feedings.

Many cases of jaundice have a simple cause of insufficient milk intake. In fact, studies repeatedly demonstrate that mothers who effectively nurse more than eight times per 24 hours in the first day of life have a significantly lowered chance of developing visible jaundice. Of those who are breastfed eight times or fewer in the first day of life, the chances of developing jaundice requiring

treatment rises as the number of feeds declines. Because the newborn eliminates jaundice through stooling, those infants who are not fed often enough and are thus not having sufficient output, have a higher risk of the bilirubin being reabsorbed into the blood stream and leading to complications.

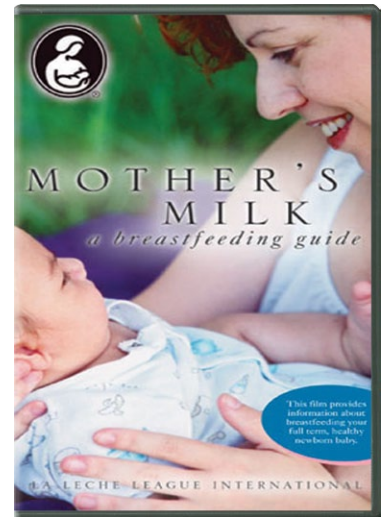
### Infant intake should be assessed to ensure adequate milk transfer at the breast.

A baby at the breast does not always equal a baby who is transferring milk. Look for signs of milk transfer when baby is nursing. These include a pause in chin movement after every few sucks, sounds of swallowing (which may sound like a puff of air), stooling soon after a feed, and jaw movement. If baby is at the breast 10 times per day but transfer is complicated by tongue-tie, poor positioning, lethargy, or maternal supply, his chance of developing jaundice and other problems will remain high.

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### Phototherapy does not require weaning.

Breastfeeding can continue during treatment for jaundice. One common treatment option for jaundice involves phototherapy. Baby is exposed to fluorescent lights (bili-lights) that emit a blue/green spectrum. This light is absorbed by the skin allowing the bilirubin to be excreted without first being conjugated by the liver and often proves effective in lowering levels. Unfortunately this treatment often involves significant mother/baby separation. The infant may be placed under a bili-light unit and only allowed to be removed for brief periods of time. Studies agree, and the American Academy of Pediatrics (AAP) states, that there is no increased risk of rising levels if baby is removed for up to 30 minutes at a time for feedings<sup>4</sup>. ▷▷



### Mother's Milk: A Breastfeeding Guide

The goal of this video is to help women have a satisfying and comfortable breastfeeding experience. Topics addressed include preventing common challenges, engorgement, latch-on techniques, and employment and breastfeeding; 30-minute DVD.

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Jaundiced infants, especially those exposed to phototherapy or with very high levels of bilirubin, tend to be lethargic and difficult to wake. A mother should use every moment of time allowed to be in skin-to-skin contact with her infant while nursing. Alternatively, many hospitals now offer bili-blankets, which consist of a blanket that can be wrapped around baby while the mother continues to hold and nurse her infant. For those infants who are not considered high-risk, these blankets may allow baby to go home with phototherapy treatment and return only for continued monitoring of blood bilirubin levels.

**Knowing bilirubin levels and where they compare to the AAP guidelines can be beneficial.**

Jaundice generally becomes visible between the second and fifth day of life. It is considered safe in most cases at levels below 15 mg/dL for healthy full-term infants after the second day of life and below 20 mg/dL for healthy full-term infants after the fourth day of life<sup>1</sup>. Many physicians will want to begin an intervention strategy before levels reach this point.

**Prolonged moderate jaundice is not a cause for panic.**

Moderate bilirubin levels in the breastfed infant may last for several months after the birth, presumably due to a substance in breast milk, which prevents rapid conjugation of the bilirubin. When levels are not rising rapidly and are not nearing the AAP guidelines for treatment, they are considered normal. Prolonged physiological jaundice has not been noted to carry any additional risks for the otherwise healthy full-term infant<sup>2</sup>.

**Treatment should be tailored towards maintaining the breastfeeding relationship while addressing the underlying cause.**

An infant who is jaundiced should be assessed for breast milk intake as the first line of treatment. If intake is insufficient, skilled breastfeeding assistance alone should improve levels. Alternatively, if intake is deemed sufficient, physicians will be monitoring the infant for blood type incompatibility, hypothyroidism, and other health issues



which can increase the risk of heightened bilirubin levels. The reason for the rise should guide the intervention strategy, again with an eye toward preserving the breastfeeding relationship. If intake is sufficient and no complicating factors exist, many doctors are willing to simply monitor the infant for spikes in their levels and attribute moderate levels to a normal physiological response.

**Temporary weaning as a treatment carries risks and benefits.**

Formula often brings down levels faster than human milk due to a factor in mother's milk slowing conjugation of bilirubin. Evaluating if the infant needs such aggressive treatment should involve a discussion with your physician, an assessment of your infant's health status, and a comparison of your infant's levels with the AAP guidelines. There are also known risks of formula supplementation which must be considered, including possible allergic reactions, heightened risk of infection, and early weaning. If weaning does occur, milk expression is imperative in order to maintain milk production. As soon as breastfeeding resumes, put baby skin-to-skin and be patient with baby and with yourself. Baby may be sleepy or confused at the breast and require time to reacquaint with breastfeeding. Your breast milk is all that your baby needs. A true medical indication for temporary



weaning is rare. The interpretation for what constitutes a medical indication is variable however, depending upon your physician and local hospital policies. Jaundice can be a speed bump but need not be a roadblock. Breastfeeding can and should be continued and supported when infants experience jaundice. Early effective nursing and breastfeeding on demand will reduce the chances of facing this issue. The Yellow Monster is certainly real, but we're learning how to keep it at bay. □

1. AAP Clinical Practice Guidelines; fig 3 Pediatrics July 2004; 114 (1):297-316.
2. Maisels, MJ and Newman, TB. Surveillance of severe neonatal hyperbilirubinemia: a view from south of the border. CMAJ 2006, September 12; 175 (6).
3. Mohrbacher, N. Breastfeeding Answers Made Simple. 2010.
4. AAP Clinical Practice Guidelines Pediatrics July 2004; 114 (1):297-316.
5. Mladenovi M, et al. Prolonged unconjugated hyperbilirubinemia caused by breast milk. Srp Arh Celok Lek November-December 2007; 135 (11-12):655-8. <http://www.ncbi.nlm.nih.gov/pubmed/18368906>