

## Yellow is a color

Adapted from [Lakeshore Medical Breastfeeding Medicine Clinic](#)

Jaundice is a color. Yellow to be exact. It appears in nearly every newborn. Something that appears in nearly every newborn is normal.

That yellow pigment comes from bilirubin, which is in turn, found inside red blood cells. In the womb, the baby's lungs are the placenta. The placenta is not very good at air exchange, so the baby, to compensate, make lots of red blood cells to carry oxygen. When the baby is born, they don't need the red blood cells. They are destroyed, releasing bilirubin, making the baby yellow.

Bilirubin appears to be an antioxidant. You get antioxidants from your diet, but a baby doesn't take in much volume, so the bilirubin serves as an antioxidant source until the baby can get enough from their diet.

There are times when yellow is a problem. Like when you aren't a newborn or a you are a preemie. Or when your baby's blood type doesn't match yours. The challenge for providers is to distinguish which children are at risk for complications of that increased bilirubin load. In order to decide what interventions, if any, are needed, we need to consider the age of the infant, the timing of the jaundice and the level of the serum bilirubin and how the kids are eating. *But in general, healthy, term newborns turn yellow.* That is not a disease: it's a color.

And while I've mentioned the level of the bilirubin, notice that it's in the context of the gestational and the chronological age of the baby and the timing of the jaundice, and how well the baby is transferring breastmilk. In short, the level of bilirubin is simply a number without more information about the baby.

### **What factors may be contributing to the baby's hyperbilirubinemia (jaundice)?**

Healthy breastfed infants normally have increased, non-pathologic, elevations in serum bilirubin, sometimes called "breastmilk jaundice." Breastmilk jaundice can last for weeks, and is thought to be beneficial to the infants because bilirubin is an antioxidant.

This is important because, as I mentioned above, newborns do not have other sources of antioxidants.[1]

Breastmilk jaundice needs to be distinguished from "starvation jaundice" which may indicate a pathologic condition. One of these conditions is decreased caloric intake and this caloric deprivation is likely secondary to a breastfeeding problem.

A baby is likely to have starvation jaundice because of poor milk transfer. Poor milk transfer is caused by a poor latch. If the baby is latched incorrectly, she cannot transfer milk and will not get the calories need to facilitate the excretion of bilirubin. Another indication of poor milk transfer is the presence of black, tarry meconium stool at day of life 3. Colostrum, the first milk made for the baby, is a laxative that promotes the excretion of meconium. In general, meconium should be well past dark and tarry by this point. Weight loss more than 8 oz. (or up to a pound for babies greater than 10 lbs) is another indication of poor milk transfer. The danger of starvation jaundice is that it may lead to kernicterus, an accumulation of bilirubin in the brain. The onset of kernicterus is characterized by an excessively lethargic baby with poor muscle tone and an absence of a startle or suck reflex. As it progresses, the baby will develop a high-pitched cry and arch it's back. Left unchecked, kernicterus will cause permanent brain damage.

### **What does it mean to be in the “high intermediate” range?**

The American Academy of Pediatrics recommends performing an assessment of every infant for the risk of severe hyperbilirubinemia.[2] Transcutaneous bilirubin levels are a way to estimate the serum bilirubin level. Once obtained, that level is plotted on a nomogram (sometimes referred to as the "Bhutani curve") according to the baby's age in hours. That nomogram is divided into risk levels. " High Intermediate" risk means that the baby has a high intermediate risk of subsequent bilirubin levels exceeding the 95th percentile of bilirubin levels.[3] It means the baby has a high intermediate risk of the bilirubin getting higher. What the magic number where danger occurs is not known.

*While this screening can identify babies at risk for severe hyperbilirubinemia, it does not predict the risk of kernicterus or other complications of severe hyperbilirubinemia. Again, the "curve" does not predict the risk of kernicterus. It predicts who is at risk for the bilirubin getting higher. No screening test currently exists that will reliably identify all infants at risk of developing kernicterus. [2] Most children are not at risk for the development of kernicterus and not all children with kernicterus have a history of hyperbilirubinemia. [1, 2]*

### **What do we do next?**

*If the cause of the baby's jaundice is likely "starvation jaundice," we need to increase the baby's caloric intake. We need to feed the baby. We need to evaluate the latch or enlist the help of someone, such as lactation consultant, who can help the mother breastfeed successfully. If the baby needs to be supplemented, our first choice is her mother's expressed breast milk, so we need to supply her with a pump and show her how to appropriately use it.*

For management of subsequent bilirubin levels, we can follow the AAP policy statement on "*Management of Hyperbilirubinemia in the Newborn Infant 35 or More Weeks of Gestation.*"[3]

*If the baby is showing no other symptoms, (poor latch, tarry meconium beyond day 3, excessive weight loss), then we can assume the baby has breastfeeding jaundice and do nothing.*

### **Resources:**

1. Academy of Breastfeeding Medicine Protocol 22
2. AAP Safe and Healthy Beginnings

### **References:**

1. Gartner, *Hyperbilirubinemia and Breastfeeding*, in *Textbook of Human Lactation*, Hale&Hartmann, Editor. 2007, Hale Publishing: Amarillo, Texas.
2. US Preventive Services Task Force, *Screening of Infants for Hyperbilirubinemia to Prevent Chronic Bilirubin Encephalopathy: US Preventive Services Task Force Recommendation Statement*. Pediatrics, 2009. **124**(4): p. 1172-1177.
3. Subcommittee on Hyperbilirubinemia, *Management of Hyperbilirubinemia in the Newborn Infant 35 or More Weeks of Gestation*. Pediatrics, 2004. **114**(1): p. 297-316.