Jaundice - Newborn
Office Hours Telephone Triage Protocols | Pediatric | 2015

DEFINITION

• The skin has turned a yellow color
• At higher bilirubin levels, the whites of the eyes also turn yellow
• Included: Home phototherapy questions are also covered

TRIAGE ASSESSMENT QUESTIONS

Call EMS 911 Now

Unresponsive and can't be awakened
R/O: sepsis

Signs of shock (very weak, limp, not moving, gray skin, etc.)

Sounds like a life-threatening emergency to the triager

Go to ED Now (or to Office with PCP Approval)

Age < 12 weeks with fever 100.4° F (38.0° C) or higher rectally
R/O: sepsis, UTI

Low temperature < 96.8° F (36.0° C) rectally that doesn't respond to warming
R/O: sepsis

Newborn < 4 weeks starts to act sick or abnormal in any way (e.g., decrease in activity)
R/O: sepsis

Baby sounds very sick or weak to triager
R/O: sepsis

Go to Office Now

Feeding poorly (e.g., little interest, poor suck, doesn't finish)

Signs of dehydration (very dry mouth, sunken fontanelle, no urine in 8 hours)

Whites of the eye (sclera) have turned yellow
Reason: bilirubin level probably over 15

Skin looks deep yellow or orange or legs are jaundiced
R/O: high bilirubin level

Jaundice worse than when last seen

See Today in Office

HIGH-RISK baby for severe jaundice (preterm < 37 weeks or ABO or Rh problem or cephalohematoma or sib needed bili-lights or Asian race, etc.)

Began during the first 24 hours of life
R/O: hemolytic jaundice
Mother concerned the baby is not getting enough breastmilk

*R/O: elevated bilirubin due to poor milk intake*

Good-sized yellow, seedy stools per day are < 3 (Exception: breastfed and before 5 days of life)

*R/O: elevated bilirubin due to poor milk intake*

Day 2 to 4 of life and no stool in over 24 hours and breastfed

Wet diapers per day are < 6 (Exception: 3 wet diapers/day can be normal before 5 days of life if breastfed)

*R/O: elevated bilirubin due to poor milk intake*

Day 2 to 4 of life and no urine in over 8 hours

Discharged before 48 hours of life and 4 or more days old and hasn't been examined since discharge

*Reason: AAP recommends re-check*

Caller is concerned about the degree of jaundice

### See Within 3 Days in Office

Jaundice begins or reappears after 7 days old

*Reason: not physiological jaundice*

Stools (BMs) are white, pale yellow or light gray

*R/O: neonatal hepatitis, biliary atresia*

Jaundice is not gone after 14 days old

*R/O: breastmilk jaundice, liver disease, UTI*

Triager thinks child needs to be seen for non-urgent problem

### Home Care

Mild jaundice of newborn

Home phototherapy, questions about

### Home Care Advice

**Mild Jaundice Treatment**

1. **Reassurance and Education:**
   - Some jaundice is present in 50% of newborns.
   - It is usually temporary and harmless.
   - The first place for jaundice to appear is on the face.
   - Jaundice that only involves the face is always harmless.

2. **Bottle Feed More Often:**
   - If bottle fed, increase the frequency of feedings.
   - Try for an interval of every 2 to 3 hours during the day.
3.] **Breastfeed More Often:**
- If breastfed, increase the frequency of feedings.
- Nurse your baby every 1½ to 2 hours during the day.
- Don't let your baby sleep more than 4 hours at night without a feeding.
- Goal: at least 10 feedings every 24 hours.

4.] **Increase Stools:**
- If your baby is 5 days or older and has less than 3 stools/day, carefully insert a lubricated thermometer ½ inch (12 mm) into the anus and gently move it from side to side a few times to stimulate the release of a stool.
- Reason: increased stools carry more bilirubin out of the body.
- Do this once or twice per day until jaundice improves or stool frequency becomes normal.

5.] **Expected Course:**
- Physiological jaundice peaks on day 4 or 5 and then gradually disappears over 1-2 weeks.

6.] **Judging Jaundice:**
- Jaundice starts on the face and moves downward. Try to determine where it stops.
- View your baby unclothed in natural light near a window.
- Press on the yellow skin with a finger to remove the normal skin tone.
- Then try to assess if the skin is yellow before the pink color returns.
- Move down the body, doing the same. Try to assess where the yellow color stops.
- Jaundice that only involves the face is always harmless.
- As it involves the chest, the level is going up.
- If it involves the abdomen, arms or legs, the bilirubin level needs to be checked.

7.] **Call Back If:**
- Jaundice becomes worse
- Legs becomes yellow
- Feeding poorly or weak suck
- Baby starts to act sick or abnormal
- Jaundice not gone by day 14

**Home Phototherapy Questions**

1.] **Bili-blanket - How it works:**
- A bili-blanket is a type of phototherapy that can be used at home. It must be prescribed by your baby's doctor. The light emitted from the blanket helps to breakdown the bilirubin in the skin. The blanket is connected to a machine by a cable. The machine is then plugged into a wall outlet.
- Safety: The bili-blanket system uses pure light energy so no electricity or heat is generated near your baby. The newborn can't see the light, so no eye patches are necessary.

2.] **Bili-blanket - How to put it on:**
- The fiberoptic blanket is inserted into a soft cover so it doesn't irritate the baby's skin.
- It emits light from one side only. The bright side is placed directly on the baby's skin and wraps the torso area.
- You can put the baby's clothes over the bili-blanket and swaddle with a regular blanket to keep the newborn warm.

3.] **Bili-blanket - When to Wear it:**
- The blanket should be left on when holding, feeding, or sleeping.
- The only time it's necessary to remove it and turn it off is during bathing.
- In fact, the blanket should be worn as much as possible to be effective.

4.] **Alternate Disposition - Call the Home Health Agency:**
- These babies are usually followed by a home health agency. The home health nurse can assess your baby in the home and provide education. They usually require daily bilirubin tests and weights.
- If you have questions about medical equipment being used in your home, the home health agency may be able to answer them over the phone as well.
Recognizing Jaundice

Sometimes callers aren’t certain if the newborn’s skin is jaundiced. The color of the sclera is essential in assessing children with darkly pigmented skin. If the sclera are white, the bilirubin level is not worrisome. If the sclera are yellow, the level may be above 15 ml/dL and it needs to be checked.

Bilirubin Level Severity By Parent’s Report of Location

- **Mild** jaundice: Face only. Don’t need to be seen.
- **Moderate** jaundice: Trunk involved (chest and/or abdomen). If the caller thinks the jaundice is worse than when last checked, these newborns need to brought in for a level.
- **Severe** jaundice: Legs involved or entire body surface. Newborns with severe jaundice all need to be referred in for a bilirubin level now.
- These zones of jaundice probably relate to differences in capillary perfusion and skin temperature.

Causes of Jaundice

**Physiological Jaundice** (50% of newborns)

- Onset 2 to 3 days of age
- Peaks day 4 to 5, then improves
- Disappears 1 to 2 weeks of age

**Breastfeeding or Malnutrition Jaundice** (5 to 10% of newborns)

- Due to inadequate intake of breastfeeding
- Pattern similar to physiological type
- Also causes poor weight gain

**Breastmilk Jaundice** (10 % of newborns)

- Due to substance in breastmilk which blocks removal of bilirubin
- Onset 4 to 7 days of age
- Lasts 3 to 12 weeks
- Not harmful

**Rh and ABO Blood Group Incompatibility**

- Onset during first 24 hours of life
- Can reach harmful levels

**Liver Disease** (rare)
• White or pale stools suggest biliary atresia or other obstructive liver disease as the cause of the jaundice.

**Normal Prolonged Jaundice in Breastfed Babies**

• At 3 weeks of age, 43% of breastfed newborns have a bilirubin level over 5 mg/dL, and 34% were clinically jaundiced.
• At 4 weeks of age, 34% of breastfed newborns have a bilirubin level over 5 mg/dL, and 21% were clinically jaundiced.
• This new data should help with reassuring mothers and HCPs that this is normal and usually babies don't require any lab tests.
• Reference: Maisels et al, Pediatrics 2014

**Scleral Icterus: a Marker for Significant Bilirubin**

• A 2013 study from University of Pittsburgh Department of Pediatrics (Azzuqa, et al) found that scleral icterus detected by the parent or HCP is a marker for bilirubin levels above 15 mg/dL.
• This finding warrants a bilirubin test.
• None of the newborns with bilirubin levels of 10-15 mg/dL had scleral icterus.

**Risk Factors for Severe Jaundice**

• Onset within first 24 hours of life
• Blood type incompatibility (Mother is type O or Rh negative)
• Preterm: Gestational age less than 37 weeks (Preterms are 5 times more likely to have bilirubin levels over 12 than 40 week newborns)
• Sibling required phototherapy
• Bruising from birth trauma (e.g., cephalohematoma)
• Breastfeeding, especially if firstborn and feeding not going well. Newborns discharged on Thursday or Friday are at highest risk, because they need to be seen on the weekend for a recheck of their jaundice (and sometimes that is overlooked).
• Asian race: Bilirubin levels over 12 occur in 23% of Asian babies, 12% of whites and 4% of African-Americans
• Caller mentions last bilirubin level was in "high-risk" zone

**Kernicterus Prevention**

• Kernicterus (bilirubin encephalopathy) is the most serious complication of high bilirubin levels
• Early symptoms are lethargy, hypotonia, poor suck and high-pitched cry
• The US kernicterus registry reported 61 cases in term and near-term healthy newborns in 8 years (Johnson 2002). Currently over 120 cases (2007).
• Bilirubin levels 22-48; 31% idiopathic, 31% G6PD, 10% hematomas
• Breastfed: 59 of 61 (increased risk for dehydration and malnutrition) (97%)
• Sequelae over 90% at 18 mo (cerebral palsy, developmental delays, hearing loss)
• Lapses in follow-up care: Only 28% were given an early follow-up appointment within 2-3 days of discharge. (AAP Practice Parameter 1994 and 2004 recommends any newborn discharged before 48 hours needs a check-up within 2-3 days of discharge for jaundice, feeding behavior, weight, hydration, etc.)
• Errors in telephone care: Mothers who phoned their doctor's office for jaundice, drowsiness, poor feeding, etc. received repeated reassurance rather than being seen

**Expert Reviewer**

• Elizabeth Thilo, MD; Neonatologist; Children's Hospital Colorado, Aurora, CO
REFERENCES


