

Jaundice is a yellowish discoloration of the skin due to increased levels of bilirubin. Jaundice usually moves from head to toe as the level increases.

Bilirubin is a substance normally found in red blood cells. The amount increases as a result of normal red blood cell breakdown with aging.

In the newborn it is often a temporary state that improves as the liver matures and functions better. It is normal for a baby's liver to be immature and to get better at processing bilirubin. Frequent breast feeding might help to decrease jaundice.

Too high of a bilirubin level can be dangerous and damaging to the baby's brain and nervous system. Proper monitoring and early recognition are important in helping baby's health.

It is important for parents to check babies for signs of jaundice several times each day until the jaundice color goes away to make sure the bilirubin level does not become too high and unsafe.

Look for these signs:

The skin or whites of the eyes turn yellowish color.

Press gently on baby's forehead with a finger for a few seconds and then release.

This helps you see the yellow under a baby's skin color.

It is seen up to 3 to 4 days after baby's birth.

Premature babies are at higher risk.

What you should do:

Immediately call your baby's physician if you see any of signs of jaundice.

Sometimes it may be severe and damage a baby's health.

Call baby's physician if you or someone else notice any of the following:

Baby has yellowish skin or yellow color in the whites of his or her eyes.

Baby is feeding less than normal.

Baby seems sleepier than normal or is difficult to wake up.

Baby is crying and is more difficult to calm or can't be calmed.

Baby is having less than normal wet diapers.

Baby was already seen by a physician for jaundice and now the yellow color of the skin is increasing. For example, the skin below the belly button appears yellow or yellowish.

Your baby's physician might recommend:

Breastfeeding baby often: this is at least 8 to 10 times every 24 hours.

If baby is formula feeding, ask baby's physician how much formula baby should be taking.

Special phototherapy lights in the hospital (or sometimes at home for specific situations).

Exchange transfusion in severe or extreme situations with severely elevated bilirubin levels.

Every baby should have their bilirubin level evaluated before they go home from the hospital.

Baby's physician can determine baby's risk level of having complications from a bilirubin level that is too high.

A graph was published by Bhutani VK, Johnson L, Sivieri EM in "Predictive ability of a predischage hour-specific serum bilirubin for subsequent significant hyperbilirubinemia in healthy term and near-term newborns.", Pediatrics 103:6-14, 1999

Based on the graph, the level of risk is determined by the baby's age and the level at that age. In general, the following estimates are helpful:

EGA : estimated gestational age: the number of weeks of pregnancy before the baby's birth

TcB : transcutaneous bilirubin level: measured on the skin

TSB: total serum bilirubin: measured by obtaining a blood sample from baby

Babies born at 35 0/7 to 37 6/7 weeks EGA who have other hyperbilirubinemia risk factors:

At 12 hours of age a bilirubin level of:

- ~7 or higher = high risk zone
- ~5.1 or higher = high-intermediate risk zone
- ~4 or higher = low-intermediate risk zone
- <4 or lower = low risk zone

Start phototherapy if 6 mg/dl or higher

- Check TSB in 4 to 24 hours
- Check TcB/TSB in 4-24 hours
- If discharge <72 hours old, follow-up <48 hours
- Consider TcB/TSB at follow-up
- If discharge <72 hours old, follow-up <48 hours

At 24 hours of age a bilirubin level of:

- ~7.8 or higher = high risk zone
- ~6.1 or higher = high-intermediate risk zone
- ~5 or higher = low-intermediate risk zone
- <5 or lower = low risk zone

Start phototherapy if 8 mg/dl or higher

- Check TSB in 4 to 24 hours
- Check TcB/TSB in 4 to 24 hours
- If discharge <72 hours old, follow-up <48 hours
- Consider TcB/TSB at follow-up
- If discharge <72 hours old, follow-up <48 hours

At 48 hours of age a bilirubin level of:

- ~13.2 or higher = high risk zone
- ~10.9 or higher = high-intermediate risk
- ~8.7 or higher = low-intermediate risk zone
- <8.7 or lower = low risk zone

Start phototherapy if 11.4 mg/dl or higher

- Check TSB in 4 to 24 hours
- Check TcB/TSB in 4 to 24 hours
- If discharge <72 hours old, follow-up <48 hours
- Consider TcB/TSB at follow-up
- If discharge <72 hours old, follow-up <48 hours

At 72 hours of age a bilirubin level of:

- ~16 or higher = high risk zone
- ~13.4 or higher = high-intermediate risk zone
- ~11.2 or higher = low-intermediate risk zone
- <11.2 or lower = low risk zone

Start phototherapy if 13.6 mg/dl or higher

- Check TSB in 4 to 24 hours
- Check TcB/TSB within 24 hours
- If discharge <72 hours old, follow-up <48 hours
- Consider TcB/TSB at follow-up
- If discharge <72 hours old, follow-up <48 hours

At 96 hours of age a bilirubin level of:

- ~17.4 or higher = high risk zone
- ~15.2 or higher = high-intermediate risk zone
- ~12.4 or higher = low-intermediate risk zone
- <12.4 or lower = low risk zone

Start phototherapy if 14.5 mg/dl or higher

- Check TSB in 4 to 24 hours
- Check TcB/TSB in 4 to 24 hours
- If discharge <72 hours old, follow-up <48 hours
- Consider TcB/TSB at follow-up
- If discharge <72 hours old, follow-up <48 hours

Babies born at 35 0/7 to 37 6/7 weeks EGA with no hyperbilirubinemia risk factors or

Babies born at 38 0/7 weeks EGA or greater with other hyperbilirubinemia risk factors:

At 12 hours of age a bilirubin level of:	Start phototherapy if 7.7 mg/dl or higher
~7 or higher = high risk zone	check TSB in 4 to 24 hours
~5.1 or higher = high-intermediate risk zone	check TcB/TSB within 24 hours
~4 or higher = low-intermediate risk zone	if discharge <72 hours old, follow-up <48 hours
<4 or lower = low risk zone	If discharge <72 hrs old, follow-up <48-72 hours
At 24 hours of age a bilirubin level of:	Start phototherapy if 9.9 mg/dl or higher
~7.8 or higher = high risk zone	Check TSB in 4 to 24 hours
~6.1 or higher = high-intermediate risk zone	Check TcB/TSB within 24 hours
~5 or higher = low-intermediate risk zone	If discharge <72 hours old, follow-up <48 hours
<5 or lower = low risk zone	If discharge <72 hours old, follow-up <48-72 hours
At 48 hours of age a bilirubin level of:	Start phototherapy if 13.1 mg/dl or higher
~13.2 or higher = high risk zone	Check TSB in 4 to 24 hours
~10.9 or higher = high-intermediate risk	Check TcB/TSB within 24 hours
~8.7 or higher = low-intermediate risk zone	If discharge <72 hours old, follow-up <48 hours
<8.7 or lower = low risk zone	If discharge <72 hours old, follow-up <48-72 hours
At 72 hours of age a bilirubin level of:	Start phototherapy if 15.5 mg/dl or higher
~16 or higher = high risk zone	Check TSB in 4 to 24 hours
~13.4 or higher = high-intermediate risk zone	Check TcB/TSB within 24 hours
~11.2 or higher = low-intermediate risk zone	If discharge <72 hours old, follow-up <48 hours
<11.2 or lower = low risk zone	If discharge <72 hours old, follow-up <48-72 hours
At 96 hours of age a bilirubin level of:	Start phototherapy if 17.5 mg/dl or higher
~17.4 or higher = high risk zone	Check TSB in 4 to 24 hours
~15.2 or higher = high-intermediate risk zone	Check TcB/TSB in 4 to 24 hours
~12.4 or higher = low-intermediate risk zone	If discharge <72 hours old, follow-up <48 hours
<12.4 or lower = low risk zone	If discharge <72 hours old, follow-up <48-72 hours

Babies born at 38 0/7 weeks EGA or greater with no hyperbilirubinemia risk factors:

At 12 hours of age a bilirubin level of:	Start phototherapy if 9.1 mg/dl or higher
~7 or higher = high risk zone	Check TSB in 4 to 24 hours
~5.1 or higher = high-intermediate risk zone:	follow-up within 24 hours: consider TcB/TSM
~4 or higher = low-intermediate risk zone	If discharge <72 hours, follow-up based on age/concerns
<4 or lower = low risk zone	If discharge <72 hours, follow-up based on age/concerns
At 24 hours of age a bilirubin level of:	Start phototherapy if 11.7 mg/dl or higher
~7.8 or higher = high risk zone	Check TSB in 4 to 24 hours
~6.1 or higher = high-intermediate risk zone	Check TcB/TSB in 4 to 24 hours
~5 or higher = low-intermediate risk zone	If discharge <72 hours, follow-up based on age/concerns
<5 or lower = low risk zone	If discharge <72 hours, follow-up based on age/concerns
At 48 hours of age a bilirubin level of:	Start phototherapy if 15.3 mg/dl or higher
~13.2 or higher = high risk zone	Check TSB in 4 to 24 hours
~10.9 or higher = high-intermediate risk	Consider TcB/TSB at follow-up
~8.7 or higher = low-intermediate risk zone	If discharge <72 hours, follow-up based on age/concerns

<8.7 or lower = low risk zone

If discharge <72 hours, follow-up based on age/concerns

At 72 hours of age a bilirubin level of:

~16 or higher = high risk zone

~13.4 or higher = high-intermediate risk zone

~11.2 or higher = low-intermediate risk zone

<11.2 or lower = low risk zone

Start phototherapy if 17.7 mg/dl or higher

Check TSB in 4 to 24 hours

Follow-up <48 hours, consider TcB/TSB at follow-up

If discharge <72 hours, follow-up based on age/concerns

If discharge <72 hours, follow-up based on age/concerns

At 96 hours of age a bilirubin level of:

~17.4 or higher = high risk zone

~15.2 or higher = high-intermediate risk zone

~12.4 or higher = low-intermediate risk zone

<12.4 or lower = low risk zone

Start phototherapy if 19.9 mg/dl or higher

Check TSB in 4 to 24 hours

Follow-up <48 hours, consider TcB/TSB at follow-up

If discharge <72 hours, follow-up based on age/concerns

If discharge <72 hours, follow-up based on age/concerns

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