# Simple test accurately predicts risk of serious jaundice in newborns

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A simple test can accurately identify which newborn babies are at risk for developing dangerous levels of jaundice, according to researchers at The Children's Hospital of Philadelphia.

While neonatal jaundice, a yellowing of the skin caused by a buildup of a blood product called bilirubin, is common in newborns and usually disappears on its own, it can progress to brain damage in a small fraction of cases.

The American Academy of Pediatrics currently recommends two options, used alone or in combination, to assess an infant's risk of developing severe hyperbilirubinemia: a predischarge measurement of the bilirubin level and a screening checklist of risk factors such as intended method of feeding, siblings with history of jaundice, and race.

The Children's Hospital researchers say that the predischarge bilirubin measurement, combined with the baby's gestational age, is the most accurate method for predicting whether the newborn is at risk.

Their findings are published in the January 2008 issue of the journal Pediatrics. Children's Hospital physicians studied outcomes for 823 newborns admitted to the Hospital of the University of Pennsylvania in Philadelphia between September 2004 and October 2005.

"The challenge facing every pediatrician who takes care of newborn babies is to identify those infants they send home that will develop a

bilirubin level that could cause injury," said Ron Keren, M.D., M.P.H., a pediatrician at Children's Hospital and the lead author of the study. "We found that by measuring the bilirubin in every baby, and combining that information with the baby's gestational age, you could accurately predict which infants are at very high risk and which ones are at very low risk."

This screening method should allow pediatricians to determine which newborns should stay in the hospital for monitoring, which may go home and return the next day for another test and which don't need any additional follow-up for jaundice. About 70 percent of babies fell into the low-risk category, while 13 percent were designated high risk and 17 percent were in the middle, said Keren.

"It did a nice job of pulling out a very large group of babies you don't have to worry about and a small group of babies that need to be closely followed," Keren said.

About four million babies are born in the U.S. each year. Of those, about 60 percent will develop jaundice in the first few days of life, but only about 1 in 100,000 will develop bilirubin levels that cause brain damage, known as kernicterus.

The authors caution that the study has a few limitations, including a small sample size. Some infants in the study were treated with phototherapy, high levels of colored light used to break down the bilirubin, before meeting the criteria. Finally, about half of the study participants were born to black mothers and the researchers' data indicates black infants are less prone to develop significant hyperbilirubinemia.

"More research on risk-assessment strategies is needed to weigh the cost of implementing a universal program and its effectiveness for preventing severe hyperbilirubinemia against false test results, unnecessary testing

and treatment, and delay in hospital discharge," said Keren.

Source: Children's Hospital of Philadelphia