

# Fellow Column: Comparing Transcutaneous Bilirubin Levels with Serum Bilirubin Levels to Screen for Neonatal Jaundice

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Newborn babies are frequently screened for jaundice to avoid kernicterus. The gold standard for checking for jaundice is the use of serum bilirubin levels and plotting the levels on an established nomogram (Bhutani Nomogram). (1, 2) However, unnecessary serum lab testing can be costly. Many clinics utilize a point of care transcutaneous bilirubin (TCB) to screen for jaundice. (3) Often clinics utilize a "75th percentile rule": if the TCB level is greater than 75th percentile for age, total serum bilirubin (TSB) should be obtained. (4)

However, these TCB nomograms are based on old data; that do not account for updated devices. (2, 5)

The TCB nomogram our clinic utilizes is based on data from Patras, Greece, using BiliChek Device between September 2005 and December 2007, which only included healthy, full-term infants with no NICU stay and minimal diversity in ethnic/ racial backgrounds. (6, 7) All patients were less than 120 hours old. 14,864 measurements from 2,818 patients.

## Materials and Methods:

Retrospective data were obtained from August 2018 to January 2021 of patients in our Riverside University Health Systems Main General Pediatrics clinic. Pts must have TCB and TSB within 4 hours of each other. Our TCB data was obtained from 2 BiliChek® devices (manufactured by Philips).

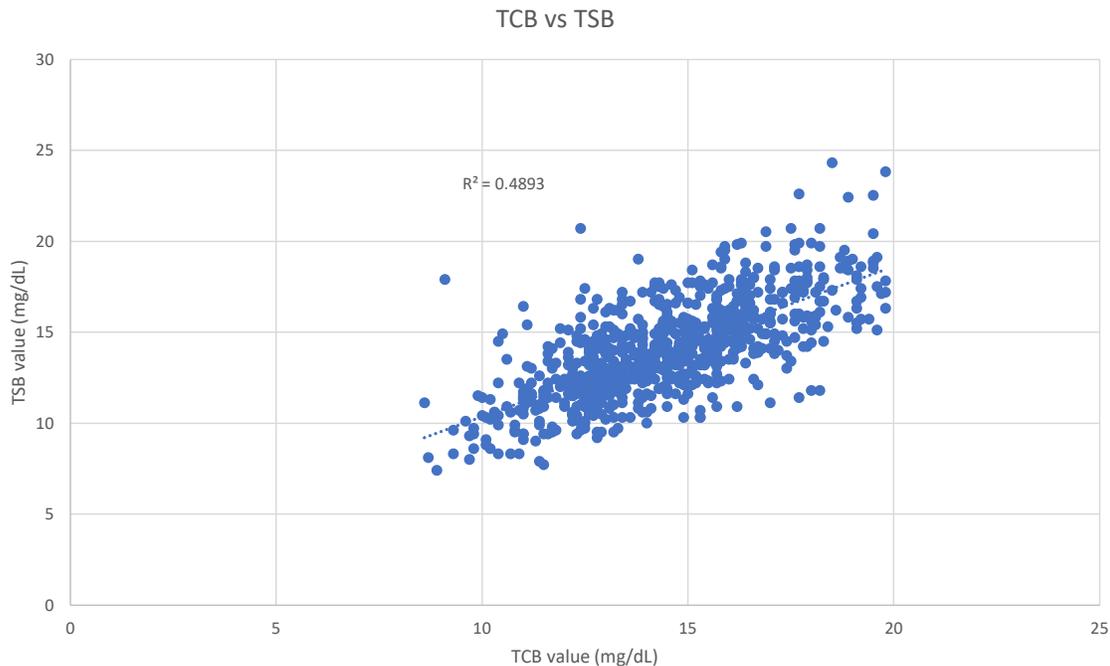
*“Newborn babies are frequently screened for jaundice to avoid kernicterus. The gold standard for checking for jaundice is the use of serum bilirubin levels and plotting the levels on an established nomogram (Bhutani Nomogram). (1, 2) However, unnecessary serum lab testing can be costly.”*

## Results:

TCB, on average, is about 0.43 higher than TSB, p-value 0.0008. N = 754. We found the TCB is more accurate for babies born >92 hours of life (p-value 0.003). There is no change in variation between those born less than 92 hours of life and those greater than 92 hours of life. (Standard deviation: 1.67 vs 1.85, respectively; F Value 1.22). No correlation between Hispanic and Non-Hispanic patients was found.

## Discussion:

Further research should be obtained to determine how point-of-care transcutaneous bilirubin devices can further minimize se-



rum bilirubin testing. This may be achieved by creating new algorithms/ protocols that determine which transcutaneous bilirubin values. Our clinic is considering a quality improvement project to decrease total serum bilirubin blood draws safely. (4)

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