

Assessing serum hemoglobin levels without venipuncture: accuracy and reliability of Pronto-7 noninvasive spot-check device.

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BACKGROUND: Hemoglobin is a frequently obtained test in hospital settings. We analyzed accuracy of a noninvasive device compared to standard laboratory analyzers in a variety of settings.

METHODS: A noninvasive hemoglobin monitoring device was analyzed for reliability, correlation, precision, and bias. Hemoglobin levels were obtained from standard laboratory and point-of-care hemoglobin analyzers and compared to noninvasive hemoglobin in inpatient and military field environments.

RESULTS: Ninety-seven patients were enrolled. Overall, the noninvasive hemoglobin device had high correlation compared to invasive laboratory values. Stratified by location, the device had high correlation in hospital and low correlation in austere environment. The highest variation in accuracy was seen in the austere environment.

CONCLUSIONS: Overall, the noninvasive spot-check hemoglobin device is reliable and highly correlates to standard hemoglobin analysis. Use in an austere setting requires further study.