

Accuracy of Noninvasive Hemoglobin and Invasive Point-Of-Care Hemoglobin Testing Compared with a Laboratory Analyzer.

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Introduction

Hemoglobin concentration is assessed to detect anemia and its associated morbidities. Hemoglobin is usually determined from venous or capillary blood samples run on a laboratory analyzer. However, this method requires a needle stick and results can be delayed. It also exposes caregivers to risks associated with needle sticks and blood exposure. Noninvasive hemoglobin determination would be of benefit to patients and caregivers because it would allow for quick and painless point-of-care assessment.

Methods

Hemoglobin determination from a noninvasive spot check hemoglobin device (Pronto-7 with SpHb, Masimo) and an invasive point-of-care device (HemoCue) was compared with venous blood samples run on a laboratory hematology analyzer.

Results

A total of 440 outpatients and healthy volunteers were included (mean age 36 years, 62% female). Compared with the hematology analyzer, the bias \pm standard deviation of was -0.1 ± 1.1 g/dL for SpHb and -0.1 ± 1.6 g/dL for HemoCue.

Conclusion

Noninvasive hemoglobin testing with SpHb provided similar accuracy as invasive point-of-care hemoglobin testing and may enable more efficient and effective patient care