

**Validation of Noninvasive Hemoglobin Measurements using the Masimo Radical-7 SpHb Station.** Causey M.W., Miller S., Foster A., Beekley A., Zenger D., Martin M. *Am J Surg.* 2011 May;201(5):590-6.

**Background**

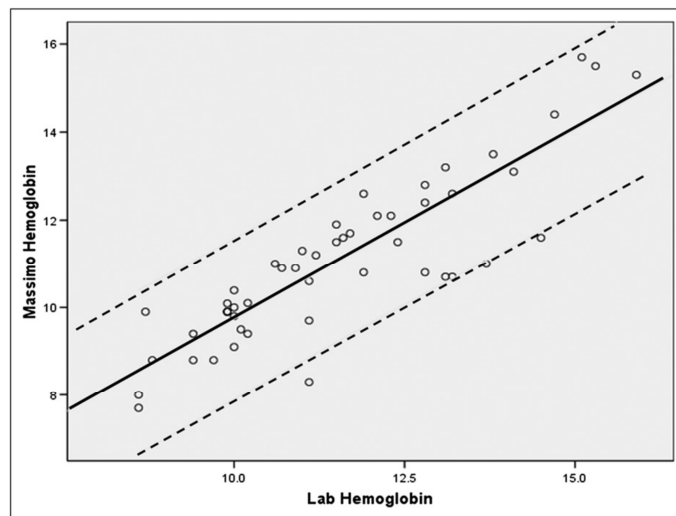
Hemoglobin levels must be obtained through blood draws, which are invasive, time-consuming, and provide only 1 data point at a time rather than continuous measurements. The Masimo Radical-7 SpHb Station (Masimo Corporation, Irvine, CA) has been shown by its manufacturers to provide accurate noninvasive hemoglobin measurements in physiologically normal patients. The objective of this study was to validate noninvasive hemoglobin measurements using the Masimo Radical-7 device.

**Methods**

Data were prospectively collected in 2 cohorts of patients: major operations requiring hemodynamic monitoring (operating room [OR]) and critically ill patients (intensive care unit [ICU]). Noninvasive hemoglobin measurements (SpHb) were recorded and were then compared with laboratory hemoglobin measurements.

**Results**

Data were collected on 60 patients (OR = 25 and ICU = 45). The overall correlation of the Masimo SpHb and the laboratory Hb was .77 (P < .001) in the OR group with a mean difference of .29 g/dL (95% confidence interval [CI], .08-.49). The overall correlation in the ICU group was .67 (P < .001) with a mean difference of .05 g/dL (95% CI, -.22 to .31).



Laboratory values and SpHb readings correlate in patients with significant bleeding. Middle line is linear correlation and two dashed lines are the 95% confidence interval.

**Conclusions**

Noninvasive hemoglobin monitoring is a new technology that correlated with laboratory values and supports the continued study of noninvasive hemoglobin monitoring.