

**Evaluation of Point-Of-Care Haemoglobin Measuring Devices: A Comparison of Radical-7™ Pulse CO-Oximetry, Hemocue(®) and Laboratory Haemoglobin Measurements in Obstetric Patients\***

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**Abstract**

We prospectively compared two point-of-care haemoglobin concentration measuring devices with laboratory measurements to determine their accuracy in women undergoing caesarean section delivery. The two devices were the Masimo Rainbow SET Radical-7 Pulse CO-Oximeter and the HemoCue(HB 201+, which is a cuvette-type system that uses photometry. CO-Oximeter readings and HemoCue measurements were taken before and after surgery, and compared with laboratory measurements of haemoglobin concentration taken at the same time. We analysed data from 137 patients using Bland-Altman plots. Limits of agreement for CO-Oximeter readings were -4.20 to 2.02 g.dl(-1) and for HemoCue were -1.49 to 1.48 g.dl(-1). The bias (mean difference) for the CO-Oximeter was -1.09 g.dl(-1) (95% CI -1.28 to -0.91) and for the HemoCue was -0.001 g.dl(-1) (95% CI -0.089 to 0.088). Overall, 110/274 (40%) CO-Oximeter readings were within 1 g.dl(-1) of laboratory values compared with 247/274 (90%) HemoCue measurements ( $p < 0.001$  for difference). The CO-Oximeter gave lower readings and was less accurate than the HemoCue system when compared with laboratory measurements.