Supplemental Text 1. Training of laboratory staff

Only fully trained laboratory staff conducted experiments for this study. The training to become a "tester" consisted of reading the manufacturer instruction manual and watching the manufacturer training video for each HemoCue® model; hands-on training on conducting proper finger stick blood sampling followed by "field practice" to ensure that each tester can successfully collect finger stick blood (individual drops as well as pooled blood collected after the third drop in a Microtainer™) from 3 or more volunteers; and finally a standardization exercise that assessed the reproducibility of the tester (collect blood from 1 volunteer via 2 independent finger sticks; measure Hb in the second and third drop from the first, then from the second fingerstick, then from the 2 Microtainer™ samples; Hb measurements should be within 1% of each other).

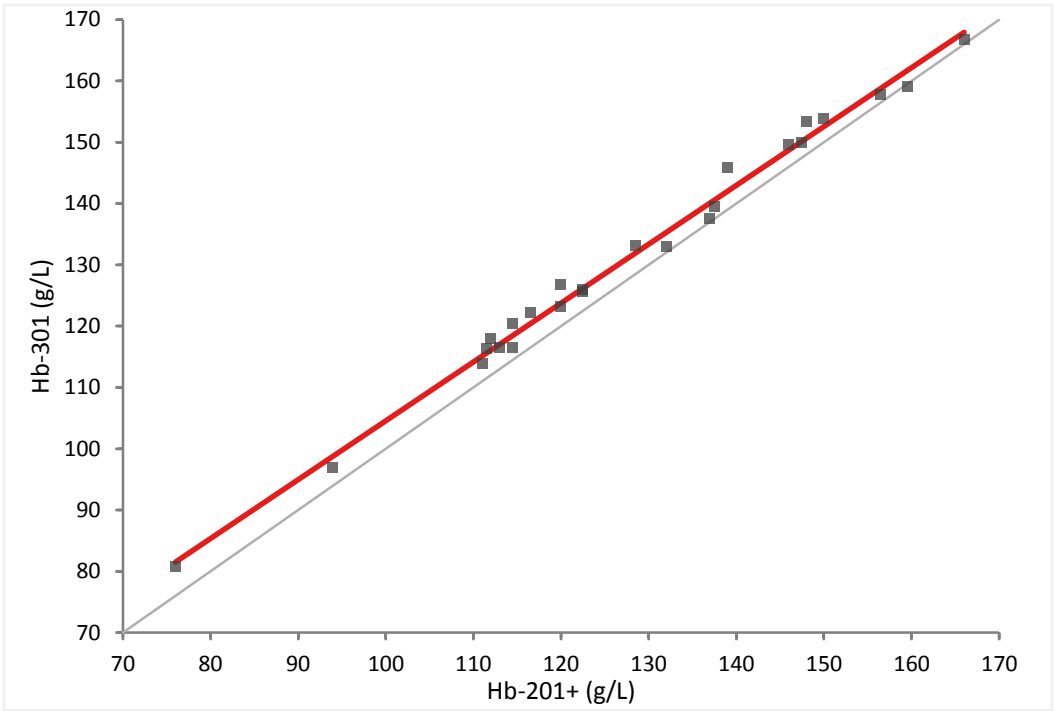
Supplemental Text 2. Effect of freeze-thawing of capillary and venous on Hb results

Capillary blood: Hb concentrations were measured using a Hb-201+ analyzer in 32 thawed capillary EDTA blood samples that were stored frozen in a Microtainer™ at -70°C for 4 d (2 readings per sample). We observed slightly but significantly lower (1.7%) mean (95% CI) Hb results [141 (136 to 146) g/L] compared to freshly measured samples [143 (138 to 149) g/L, p <0.0001].

Venous blood: Hb concentrations were measured using two Hb-201+ and Hb-301 analyzers each (1 reading each) in 25 venous EDTA blood specimens that were stored for 2 d at -70°C and underwent 2 freeze-thawing cycles. For the Hb-201+ analyzer, there was a small significant mean decrease of 2.3 g/L (corresponding to -1.8%) from baseline to the first freeze-thawing cycle (p <0.0001) and 2.0 g/L (corresponding to -1.6%) to the second freeze-thawing cycle (p <0.0001). The difference between the first and second freeze-thawing cycle was not significant. For the Hb-301 analyzer, there was a small significant mean increase of 3 g/L (corresponding to 1.6%) from baseline to the first freeze-thawing cycle (p <0.0001) and 4 g/L (corresponding to 2.1%) to the second freeze-thawing cycle (p <0.0001). The difference between the first and second freeze-thawing cycle was significant (p = 0.0383). The increase in Hb results may be explained by changes in the ratio of Hb/oxyhemoglobin.

Supplemental Fig. 1. Comparability of HemoCue® models Hb-201+ and Hb-301 using 25 venous blood samples as shown by a least squares linear regression plot (panel A) and a Bland-Altman difference plot (panel B) (experiment 1). In panel A, red line represents the best-fit regression line and grey line represents the line of ideality. In panel B, solid blue line represents the mean difference and dashed blue lines represent the limits of agreement (mean difference ± 2 SD).

A



B