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Improved Reliability of Hemoglobin Assay with HemoCue for Satellite and Physicians Office Testing

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Introduction: Filter photometry of cyanomethemoglobin at one wavelength following dilution of capillary blood with Drabkins solution according to the recommendations of the International Committee of Standardization in Hematology (ICSH) is flawed by imprecision related to high sample dilution and by possible errors due to sample turbidity. This study reports our experience of hemoglobindetermination in satellite and physicians office testing, SPOT, with a new equipment, HemoCue. This equipment is expected to deliver more precise results because sample dilution is unnecessary and turbidity errors eliminated by readings at two wavelengths in a microcuvet.

Method: We placed a filterphotometer and a HemoCue instrument at the emergency unit of our hospital. The personnel was trained for hemoglobindetermination. Capillary blood was obtained and split samples analysed as singles in the filterphotometer according to the ICSH and in the HemoCue according to the manufacturers instructions (Leo Diagnostics, Helsingborg, Sweden). Accuracy was checked simultaneously in EDTA-blood analysed in the Hemalog 8/90 as reference (R).

Results: The ease of handling the HemoCue equipment was appreciated by the users. The regression equation for the filter photometer (FP) was FP = 1.02 (R) - 10 (n=69, r=0.69). The regression equation for the HemoCue (HC) was HC = 0.97 (R) - 0.5 (n=69, r=0.95).

Conclusion: The HemoCue simplifies hemoglobinometry and clearly enhanced the reliability of the results by delivering more precise and specific results as judged from the improved coefficient of correlation. It may thus be recommended for SPOT.