

Glycosylated haemoglobin: comparison of five different methods, including measurement on capillary blood samples.

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Ann Clin Biochem 1986; 23: 85–91

Summary: Glycosylated haemoglobin was measured in venous blood samples and in blood collected in 'Unistep' bottles by isoelectric focusing (IEF), as the reference method, and by electroendosmosis (EEO), the thiobarbituric acid method (TBA), ion-exchange chromatography (IEC) and affinity chromatography (AC). Isoelectric focusing, electroendosmosis and thiobarbituric acid gave similar results. Affinity chromatography gave lower results than isoelectric focusing for normal values but similar results for diabetics. Ion-exchange chromatography gave 24% lower results than isoelectric focusing across the range. Using Unistep collected blood samples and comparing multiple samples from the same patient, electroendosmosis gave the best results (coefficient of variation 4%) and thiobarbituric acid gave slightly less good precision than other methods. Re-use of affinity chromatography columns gave less good precision. Collection of blood samples into a Unistep bottle gave similar results to venous sample results. Storage of venous capillary blood samples in Unistep bottles over 1 week at 21°C gave similar results to immediate assay. Electroendosmosis of blood samples in Unistep bottles gave stable results over 2 weeks. Home collection by a patient of a capillary blood sample into a Unistep bottle allows glycosylated haemoglobin results to be available when seen in the clinic.