



Evaluation of a Portable Blood Lead Analyzer as an Alternative to Graphite Furnace Atomic Absorption Spectrophotometer

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ABSTRACT

Objective: To evaluate LeadCare II analyzer, a portable electro-analytical instrument used to rapidly analyze blood lead levels (BLL) in children, and compare it to gold standard, graphite furnace atomic absorption spectrometry (GFAAS)

Methodology and results: Twenty-two (22) duplicate fresh capillary blood samples were tested using both LeadCare II kits and GFAAS. There was a strong, positive correlation ($r = 0.787$, $r^2 = 0.62$) between the BLL determined by LeadCare II and GFAAS. In this study, LeadCare II analyzer scored 57% sensitivity, 80% specificity and positive predictive value (PPV) of 0.8.

However, like all screening tests, its predictive value depends on prevalence of disease and the number of individuals.

Conclusion and application of findings: LeadCare II offers an opportunity to cost effectively screen for childhood lead poisoning in Kenya. It has potential to improve patient care by providing instant results so that in one visit to a health center, information on lead poisoning can be provided and immediate treatment initiated if necessary.

Key words: Blood lead levels, Kenya, GFAAS, LeadCare II analyzer