

PP 11: Analytical performance of glucometers as point of care testing devices in management of diabetes mellitus: a scoping review

P.T.A. Thilakarathna

Department of Medical Laboratory Science, Faculty of Allied Health Sciences, University of Ruhuna

Introduction: Diabetes Mellitus (DM) is a metabolic disorder causing chronic and life-threatening complications in which 420 million people have suffered worldwide. The use of glucometers in blood glucose measurement as self-monitoring and point of care testing devices is common due to the rapid result generation and ability of using without professional knowledge. The accuracy and precision should be considered in the decision-making of the survivor's condition using glucometer values.

Objectives: This study aims to summarise the findings of the analytical performance of glucometers used in the management of DM.

Methods: A literature review was conducted in the duration 01.01.2016 to 30.08.2021 within databases of Google Scholar and PubMed. The research articles in English were assessed. Six papers met the inclusion criteria of the review. The data extraction and appraisal were performed using the PRISMA checklist for scoping review.

Results: The readings of glucometer and standard venous glucose tests had compared using correlation, regression, or error grid analysis. The values of procedures had significant differences comparatively. The accuracy and precision had significantly altered substantially in low and high blood glucose values.

Conclusions: This review suggests reaching critical medical decisions only by utilizing values of clinical laboratory standard methods. Continuous calibration and maintenance are remarkable in the accuracy and precision of glucometers.

Keywords: accuracy and precision, analytical performance, diabetes mellitus, glucometers