

Measuring Glucose Concentrations: Daily Practice, Current and Future Developments

Lutz Heinemann, Ph.D.

Abstract

Self-monitoring of blood glucose (SMBG) by means of modern glucose meters is of relevance for all patients with diabetes. It not only provides important information about the effect of therapeutic interventions on metabolic control, but about the effect of exercise and meals as well. Therefore, it is an essential part of diabetes therapy. However, it has received little interest from academia in the last 10 years. This is in sharp contrast to the massive increase in SMBG use in the last decades and its economic impact on health care systems. Many physicians and patients believe that SMBG and the measurement technologies behind it are a no-brainer nowadays, i.e., that the measurement provides reliable results in practically all cases. In reality, it appears as if patients have only mediocre knowledge about the appropriate handling of the procedure and subsequent therapeutic action. Also, evaluation of the measurement quality of blood glucose meters is not studied adequately in many cases. Such studies should also take into account handling by the patients themselves under daily life conditions. Unfortunately, most of such studies are initiated and sponsored by the manufacturers of blood glucose meters/test strips, and not by an independent institution. In view of the costs and risks combined with SMBG, we should consider that all patients participate in a course that ends with a little examination and provides them with a "driver's license" for this diagnostic measure.

J Diabetes Sci Technol 2008;2(4):710-717

Author Affiliation: Profil Institute for Metabolic Research, Neuss, Germany

Abbreviations: (BG) blood glucose, (CGM) continuous glucose monitoring, (RCT) randomized controlled trial, (SMBG) self-monitoring of blood glucose

Keywords: self-monitoring of blood glucose, insulin therapy

Corresponding Author: Prof. Dr. rer. nat. Lutz Heinemann, Profil Institut für Stoffwechselforschung, GmbH, Hellersbergstr. 9, D-41460 Neuss, Germany; email address lutz.heinemann@profil-research.de