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New Approaches to Display of Self-Monitoring of Blood Glucose Data

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Abstract

Background:

There is a need for improved methods for display and analysis of self-monitoring of blood glucose (SMBG) data to facilitate identification of clinical problems, assist the clinician in the interpretation of daily patterns and longitudinal trends, serve as a guide to locating the most important segments of logbook data, and permit rapid analysis of the patient's pattern of glucose monitoring.

Methods:

We developed prototype software to display SMBG data in a two-dimensional color-coded array: Time of day is displayed on the horizontal axis; date or sequential day is displayed on the vertical axis. Each glucose value is shown by a color-coded symbol categorizing it as "very high," "high," "within target range," "low," or "very low." The number of categories and their ranges can be defined by the user, and different target ranges and limits for the categories can be used for different times of day. Placing the cursor over any observation activates a "pop-up box" showing the date, day of week, time of day, glucose value, and ancillary information. Several options and variations are available.

Results:

This new type of display is compact, serves as a guide to assist the physician in locating the most important segments of the logbook, and permits display of glucose data from 90 or more days in a chart as small as 4 by 4 inches. This analysis permits rapid identification of measurements that are above or below the target range and facilitates rapid evaluation of patterns observed on different days or days of the week.

Conclusion:

These new approaches complement other popular graphical displays by conveying information efficiently and effectively to the physician, other health care providers, the patient, and family caregivers in a new and novel, concise, standardized yet flexible format.

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Abbreviation: (SMBG) self-monitoring of blood glucose

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