

Glucometric Guardianship

SANJAY KALRA*, NAVNEET AGRAWAL†, NITIN KAPOOR‡, ATUL KALHAN#, JOEL TEELUCKSINGH\$, RAKESH SAHAY^Y

ABSTRACT

This communication conceptualizes, defines and describes glucometric guardianship, as a means of ensuring optimal glycemic management. We define glucometric guardianship as the process of ensuring appropriate measurement, monitoring and analysis of glucose levels, so as to ensure alertness in glycemic management, and agility in anticipating and detecting suboptimal glycemic parameters, and responding to them. This paper hopes to draw attention to the need for glucometric science, encourage debate and discussion and facilitate research on the topic.

Keywords: Capillary glucose, glucose monitoring, indoor glucose management

Modern medical practice is characterized by ever increasing complexity. This is especially true for diabetes care, where a wide spectrum of causative factors, clinical presentations and course of illness, complications and comorbidities intersects with an equally vast offering of therapeutic choices.

The permutations and combinations available to the practicing clinician can be put to efficient and effective usage only if our monitoring systems and strategies are robust. While there are well-developed algorithms for glycemic management in indoor and outdoor settings,^{1,2} they do not integrate the nuances of glucose monitoring. Glucometric measurement and analysis is the limiting factor for, and also the stepping stone to, optimal glycemic control. Standardization of glucometrics^{3,4} can help improve the process of drug choice and dose titration.

STEWARDSHIP IN SCIENCE

The concepts of antibiotic stewardship, insulin stewardship and steroid stewardship serve to ensure safe and rational usage of these drugs.⁵⁻⁷ These campaigns have contributed to greater awareness about the use of these intervention. We propose a similar framework, glucometric guardianship (GG), to highlight the need for systematic use of glucose monitoring devices, in order to accomplish accurate glycemic analysis, optimal glucose control, and comprehensive overall management.

DEFINITION

We define GG as the process of ensuring appropriate measurement, monitoring and analysis of glucose levels, so as to ensure alertness in glycemic management as well as agility in anticipating and detecting suboptimal glycemic parameters, and responding to them. Glucometrics has been defined earlier as the systematic analysis of inpatient glucose data.⁸ The authors have called for consensus and standardization so that inter-institutional benchmarking can occur. However, the concept of GG extends far beyond this (Table 1).

The concept of GG encompasses the physical and electronic infrastructure, as well as the human resources involved in glucose monitoring, analysis and management. Infrastructure includes both hardware (glucose measuring devices and ancillary supplies) and software (data recording and analysis) related to glucometrics. Educated and experienced human resources are essential for glycemic management, and GG delineates the roles and responsibilities of various members of the health care team. GG can be used in

*Dept. of Endocrinology, Bharti Hospital, Karnal, Haryana, India; University Center for Research & Development, Chandigarh University, Mohali, Punjab, India

†Dept. of Medicine, Diabetes Obesity and Thyroid Centre, Gwalior, Madhya Pradesh, India

‡Dept. of Endocrinology, Diabetes and Metabolism, Christian Medical College and Hospital, Vellore, Tamil Nadu, India; The Non Communicable Disease & Implementation Science Unit, Baker Heart and Diabetes Institute, Melbourne, Australia

#Dept. of Endocrinology, Royal Glamorgan Hospital, Cardiff, United Kingdom

\$Dept. of Endocrinology, San Fernando General Hospital, San Fernando, Trinidad and Tobago;

Dept. of Endocrinology, Central Specialist Medical Centre, Chaguanas, Trinidad and Tobago

^YDept. of Endocrinology, Osmania Medical College, Hyderabad, India

Address for correspondence

Dr Sanjay Kalra

Dept. of Endocrinology, Bharti Hospital, Karnal, Haryana, India; University Center for Research & Development, Chandigarh University, Mohali, Punjab, India

E-mail: brideknl@gmail.com

Table 1. Domains of Glucometric Guardianship**Equipment**

- Choice of glucose monitoring device: e.g., glucometer vs. flash glucose monitoring device; glucometer/FGMS model
- Individual device or common device: e.g., prefer individual glucometer if expected hospital stay of >2-3 days, or if expected number of glucose pricks is >20
- Glucose sticks: available at bedside/central station
- Lancets: available at bedside/central station
- Alcohol swabs: available at bedside or central station
- Meter calibration: needed/not needed and at what frequency

Roles and responsibilities

- Glucose monitoring: by -
- Data entry: by -
- Analysis: by -
- Disposal of used ancillary supplies: by -, at -
- Red flag range: e.g., call duty doctor if plasma glucose <40 mg/dL and >400 mg/dL; check urine/blood ketones if BG >400 mg/dL
- Treatment/titration: by -
- Meter calibration: by -

Patient-specific glucometric guardianship

- Frequency of monitoring
- Site of prick; rotation of fingers
- De-escalation of frequency of monitoring: e.g., if BG 100-200 mg/dL; <20% change in consecutive glucose values at current frequency
- Escalation of frequency of monitoring: e.g., if BG <100 or >200 mg/dL; >20% change in consecutive glucose values

every health care setting: outdoor, indoor and critical care, irrespective of the level of resource availability or allocation.

SUMMARY

Through this communication, we attempt to create a framework for GG in the indoor care setting. This framework can be used as a foundation to create customized GG protocols for every health care setting. It can be modified to suit needs of individual patients as well. The check list format allows for error-free, efficient, user-friendly incorporation into pre-existing standard operating procedures. GG does not replace, but rather complements the algorithms that are already being used by various hospitals.

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