Glucometer for Kids: What Do We Need?

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Special clinics for type 1 diabetes have been started in many developing countries under the banner of CDiC, or Changing Diabetes in Children. Free education, physician visits, glucometers, and strips are being provided to children from underprivileged sections of the society. We have learned a lot from our experience, and indeed, treating these children entails comprehensive mental, emotional, medical, and social support.

Self-monitoring of blood glucose is an essential part of this care model. However, we feel that glucometers used in children would be more helpful if few operational features were added.

Apart from accuracy and reproducibility, we in developing countries would want them to have unaltered performance characteristics even in extreme conditions, including high temperature and humidity.

In children, omission and fabrication of logbooks are very common. Therefore, the memory function of the machine is indispensable to the doctor so that logbook entries can be crosschecked. The greater the number of values stored, the better. Date and time need are normally set before operability and usability of this function; however, if the battery of the glucometer is removed, the date and time settings are lost. In children, this happens quite frequently. In addition, in most machines, the date and time can be reset by randomly pressing buttons. This means that children or their peers inadvertently or even intentionally pressing buttons may change the date and time and assist in fabricating data. Hence, we recommend that the changes to date and time settings should be performed only by a physician or company provider via a microchip that can be set only by a computer or is password protected.

Most glucometers have their readings displayed in Arabic numerals and/or in English language. Given that many people are unable to read English, and whereas people may easily read in vernacular languages, taking cues from available options in many mobile and telecom providers who provide display in local languages, there should be an option to display in local languages. Also, most people who may not be able to read and write can easily understand if a number is read aloud in the local language or even in English. Additionally, this is more scientific because the hearing function in children matures earlier than reading and writing. Hence, if these instruments have an audio option that would read aloud the measurement, it would be highly valuable. An audio option or alerts with picture messages that trigger an appropriate response would be invaluable.

Mismatched code and strips is also a serious problem because code chips are frequently lost by children and their peers. Hence, a meter free from code matching may be beneficial.

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A child confided to us that he feels embarrassed and finds it a difficult task to test his blood glucose in front of his peers. The case that contains the glucometer and strips is too big to go unnoticed. Sleeker machines with the strips stored within the machine rather than in a separate container would be delightfully encouraging to the kids.

Rapidly changing glucometer strips and models also add to the confusion because each new glucometer requires re-training. There should be international guidelines for various glucometers on operability, uniformity of operational characteristics, and uniformity in the appearance of keys.