

## Abstract

# Evaluating Acceptability of Cellular Glucose Meter Use in a Diabetes Care Management Program: A Qualitative Study

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## Abstract

**Background:** Diabetes is difficult to manage and many patients require additional support to control their disease. Increasingly, connected health technologies, such as secure patient portals, are being used in diabetes care management programs to provide such support. Uploading self-monitored blood glucose (SMBG) recordings to patient portals is an increasingly common strategy to support improved monitoring. Recently introduced cellular glucose meters can be used to automate the upload process immediately after testing. Automatic uploading eliminates the need for patients to connect meters to a computer and enables support teams to monitor uploads in real-time and in turn, provide in-the-moment support as needed. Despite their potential to improve diabetes management, the use of cellular glucose meters is not without challenges. Although designed for simplicity and seamless use, meters sometimes require a degree of technological skill that certain patients may not possess. Patients may also struggle to understand how to best utilize functionality to help manage their disease. When perceived ease of use or usefulness is low, utilization of the technology may result in unanticipated consequences. For this reason, patient acceptability must be evaluated before cellular glucose meters can be implemented more broadly.

**Objective:** To evaluate patient acceptability of cellular glucose meter use in a diabetes care management program.

**Methods:** Patients with Type 1 and Type 2 diabetes received cellular glucose meters and were enrolled in a care management program. Certified Diabetes Educators (CDEs) monitored uploaded SMBG recordings. The CDEs provided structured support and coaching to participants and interacted with their medical providers as necessary. After 1 month of the program, focus groups and semi-structured phone interviews were conducted with the participants. Audio recordings of each were transcribed verbatim and the resulting transcripts were thematically coded. An a priori code list, based on the Technology Acceptance Model, was used to guide the analysis and further codes were added to represent other themes from the transcripts.

**Results:** Participants with Type 1 (n=6) or Type 2 (n=10) diabetes reported that the cellular glucose meter was both easy to use and useful. The meter's most favorable features were the automatic and seamless uploading of SMBG recordings, SMBG tracking and sharing tools, and tips provided through the meter. The support provided by the CDEs through the management program was also identified as being helpful. Identified areas of improvement included providing training on the meter and program, improved consistency and efficiency of the meter's functional performance, and additional meter functionality.

**Conclusions:** All participants reported a positive overall experience using the meter as part of the care management program. Future work should focus on long-term patient acceptability and efficacy of using cellular glucose meters in diabetes management programs and the subsequent effects on clinical service utilization and provider workflow.

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## KEYWORDS

medical informatics, health information technology, health communication, health information management, diabetes mellitus, patient care management

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## Multimedia Appendix 1

Extended Abstract.

[\[PDF File \(Adobe PDF File\), 216KB - iproc\\_v1i1e2\\_app1.pdf\]](#)

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