

The Impact of Using Mobile-Enabled Devices on Patient Engagement in Remote Monitoring Programs

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Abstract

Background:

Different types of data transmission technologies are used in remote monitoring (RM) programs. This study reports on a retrospective analysis of how participants engage, based on the type of data transfer technology used in a blood pressure (BP) RM program, and its potential impact on RM program design and outcomes.

Methods:

Thirty patients, aged 23–84 years (62 ± 14 years), who had completed at least 2 months in the program and were not participating in any other clinical trial were identified from the Remote Monitoring Data Repository. Half of these patients used wireless-based data transfer devices [wireless-based device (WBD)] while the other half used telephone modem-based data transfer devices [modem-based device (MBD)]. Participants were matched by practice and age. Engagement indices, which include frequency of BP measurements, frequency of data uploads, time to first BP measurement, and time to first data upload, were compared in both groups using the Wilcoxon–Mann–Whitney two-sample rank-sum test. Help desk call data were analyzed by Chi square test.

Results:

The frequency of BP measurements and data uploads was significantly higher in the WBD group versus the MBD group [median = 0.66 versus 0.2 measurements/day ($p = .01$) and 0.46 versus 0.01 uploads/day ($p < .001$), respectively]. Time to first upload was significantly lower in the WBD group (median = 4 versus 7 days; $p = .02$), but time to first BP measurement did not differ between the two groups (median = 2 versus 1 day; $p = .98$).

Conclusion:

Wireless transmission ensures instantaneous transmission of readings, providing clinicians timely data to intervene on. Our findings suggest that mobile-enabled wireless technologies can positively impact patient engagement, outcomes, and operational workflow in RM programs.

J Diabetes Sci Technol 2013;7(3):623–629

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Abbreviations: (BP) blood pressure, (CCH) Center for Connected Health, (DC) Diabetes Connect, (MBD) modem-based device, (RM) remote monitoring, (RMDR) Remote Monitoring Data Repository, (WBD) wireless-based device

Keywords: chronic diseases, mobile, patient engagement, remote monitoring, self-management

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