

Remote Monitoring Technologies for the Prevention of Metabolic Syndrome: The Diabetes and Technology for Increased Activity (DaTA) Study

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Abstract

Objectives:

Remote monitoring technologies are ideally suited for rural communities with limited access to health care. In an 8-week pilot study, we examined the feasibility of implementing and conducting a technology-intensive intervention in an underserved rural setting. Our goal was to test the utility of self-monitoring technologies, physical activity, and education as tools to manage health indicators for the development of the cardiovascular complications (CVCs) of type 2 diabetes.

Research Design and Methods:

The Diabetes and Technology for Increased Activity study was an open single-center study conducted in a community-based research setting. All 24 participants were provided with a Blackberry™ Smartphone, blood pressure monitor, glucometer, and pedometer. Smartphones transmitted measurements and survey results to the database, interfaced participants with the clinical team, and allowed for self-monitoring.

Results:

Outcomes were improved body composition, improved markers of CVC risk factors, increased daily exercise, and interest in or awareness of lifestyle changes that impact health outcomes. Participants had excellent compliance for measurements, as self-monitoring provided a sense of security that improved from week 4 to week 8.

Conclusions:

Our team gained substantial insight into the operational requirements of technology-facilitated health care, including redefined hours of service; data reporting, management, and access protocols; and the utility of real-time clinical measures by remote monitoring. We developed an understanding of knowledge translation strategies as well as successful motivational and educational tools. Importantly, remote monitoring technology was found to be feasible and accepted in a rural setting.

J Diabetes Sci Technol 2011;5(4):936-944

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Abbreviations: (BG) blood glucose, (BP) blood pressure, (CT) clinical team, (CV) cardiovascular, (CVC) cardiovascular complication, (CVD) cardiovascular disease, (DaTA) Diabetes and Technology for Increased Activity, (HR) heart rate, (HT) hypertension, (MS) metabolic syndrome, (PA) physical activity, (PI) principal investigator, (SMS) short message service, (SSL) secure sockets layer, (TSS) technology implementation and systems administration specialist

Keywords: diabetes, lifestyle management, remote monitoring, rural primary care, technology

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