TEXT TO MOVE – Randomized Controlled Trial of Personalized Text Messaging to Improve Physical Activity in a Diverse Patient Population with Type 2 Diabetes Mellitus

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ABSTRACT

Physical activity (PA) is one of the recommended self-care behaviors that have been shown to improve outcomes in the management of type 2 diabetes mellitus (T2DM), but it is difficult to initiate and sustain for patients with T2DM. Text messages (SMS) are rapidly becoming a means of reaching out to diverse patient populations because of the low cost and the ubiquitous nature of mobile phones.

This study examined the effect of personalized text messages on PA, as measured by a pedometer, and clinical outcomes (HbA1C) in patients with T2DM in a 2-arm randomized controlled trial. Following guidelines set by the American Diabetes Association, patients in the program were staged using the Trans-theoretical Model of behavior change, into one of the five stages of behavior change, from pre-contemplation to maintenance, and set personal PA goals. The control group received a pedometer too without personalized messages, in addition to standard diabetes care at Massachusetts General Hospital (MGH). The intervention group received a pedometer, interactive personalized messages twice a day and standard diabetes care. The messages consist of practical educational and motivational information tailored to a 4th grade reading level, their stage of behavior change, and language (English or Spanish). Both groups used a pedometer with wireless upload of data into a SMS engine, which then transmitted customized SMS based on a pre-set algorithm. The morning message delivered subjects' activity data from the previous day, in context to their goal, while an evening message provided the other messages. The intervention was successfully tested for feasibility in a total of 20 subjects, for 3 weeks. Subjects tested whether the appropriate messages were sent based on the algorithm, whether they were sent on time, and whether the frequency of the messages was appropriate.

This intervention is ongoing at 4 MGH community health centers – Revere, Chelsea, Charlestown and Everett.

The low cost and design of the messages makes it possible for the program to be easily scaled across a diverse patient population regardless of age, educational, economic or ethnic background and sustained for a longer duration; thereby, facilitating sustained behavior change. Given the level of evidence of PA for improved outcomes in DM, personalized SMS could be a means to achieving and sustaining this necessary but difficult behavior to change in T2DM.