Text Messaging to Improve Hypertension Medication Adherence in African Americans

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Summary: Hypertension is the leading cause of cardiovascular disease worldwide. Chronic hypertension is particularly burdensome for African Americans because they are more susceptible to the condition than other racial groups. Despite evidence that hypertension medications can reduce the risk of myocardial infarction and stroke, only about half of patients who have been diagnosed with hypertension in the United States adhere to those regimens.

Mobile phones and text messages are becoming widely integrated into daily life and may offer a simple and less labor-intensive way to enhance medication adherence. This project is developing and testing an automated text message system to improve medication management by helping individuals self-monitor adherence through reminders. It is theorized that individuals who use a mobile phone-based automated text message system will have improved medication adherence, medication self-efficacy, and blood pressure control. The system will assess African Americans with uncontrolled hypertension on medication adherence, medication self-efficacy, and blood pressure measurements from baseline to 1-month followup, and will also track participant perceptions of intervention effectiveness and satisfaction.

Specific Aims:

- Utilize patient participant feedback in the development of a mobile phone text message system to improve adherence to antihypertensive medications. **(Achieved)**
- Understand the effect of the newly-developed text message system on changes in medication adherence, medication self-efficacy, and blood pressure from baseline to 1-month followup in African Americans with uncontrolled hypertension. **(Ongoing)**
- Assess participant perceptions of intervention effectiveness and satisfaction in order to guide further system refinement. **(Upcoming)**

2011 Activities: At the start of the year, the project team conducted three focus groups. Inclusion criteria for the focus groups were African American, hypertension as documented in the electronic medical record, cell phone ownership, and under-active treatment. Based on the results of the focus groups, Dr. Buis and her team developed a text messaging system that provides patients with customizable adherence reminders as well as educational messages about high blood pressure, nutrition, and physical activity. The system underwent robust testing to ensure that all of its components functioned properly. System tests confirmed that text messages were properly sent and received. Automated processes were

reviewed to ensure that the system was able to process different data structures and that the customizable features functioned as designed. An interface was developed to collect baseline and follow-up data, including demographic and clinical characteristics. The system will then be evaluated in a randomized controlled trial.

As last self-reported in the AHRQ Research Reporting System, project progress and activities are mostly on track and project budget spending is roughly on target.

Preliminary Impact and Findings: Analysis of the focus groups indicated that despite high self-reported adherence to medications, participants do not always take their medications as prescribed. Additionally, the focus groups confirmed that the vast majority of participants had previously used text messaging. While all participants indicated that they were in favor of a text message approach to improving medication adherence, they overwhelmingly stated that they did not want to use texting to report adherence after each dose or on a daily basis. The majority of participants wanted to receive daily reminders to take their medications with the option of customizing the time that texts are sent as well as the number of reminders. In addition, many participants reported that they are interested in receiving occasional health promotion or educational messages related to high blood pressure, nutrition, and physical activity. These findings contributed to the design of the automated text message intervention, which is now being evaluated in a small randomized controlled trial.

Target Population: Adults, Hypertension, Racial or Ethnic Minorities*: African American

Strategic Goal: Develop and disseminate health IT evidence and evidence-based tools to support patient-centered care, the coordination of care across transitions in care settings, and the use of electronic exchange of health information to improve quality of care.

Business Goal: Implementation and Use

** This target population is one of AHRQ's priority populations.*