

Healthy Teens TXT ME: Information Technology to Change Teen Health Risk Behaviors

Principal Investigator:	Olson, Ardis L., M.D.
Organization:	Dartmouth College
Mechanism:	PAR: HS08-269: Exploratory and Developmental Grant to Improve Health Care Quality through Health Information Technology (R21)
Grant Number:	R21 HS 018214
Project Period:	November 2009 – March 2012
AHRQ Funding Amount:	\$299,978

Summary: Adolescence is a time of rapid and complex change during which health risks stem more from behavioral factors than biomedical factors. While many behaviors are experimental, habits and coping patterns developed during this developmental stage may continue into adulthood. Research has shown that school-based interventions for major risks are often nominally effective or ineffective. Interventions that use motivational interviewing and technology to enhance screening and counseling of adolescents are costly, intensive, and require additional time, staff, or computer resources not generally available to most primary care providers. This project seeks to utilize information technology (IT) to develop an integrated screening, counseling, and post-visit support system to increase physical activity among adolescents.

Dr. Olson and her research team programmed and tested the Healthy Teens personal digital assistant (PDA) screening program software that supports effective clinician counseling about exercise uptake. In addition, the software was programmed to produce a summary report that will transfer data into patient electronic medical records for future reference. A system of IT-based post-health visit supports was created to help teens increase exercise. The first support was tailored cell phone text messaging to teenagers who indicated that they were interested in behavior change. A Healthy Teens TXT ME social network site was established for project participants to share experiences and support their change efforts. The text messages sent to teens informed them about developments and new links on the network site.

Two feasibility pilots of the TXT ME program were implemented with post-visit support in eight primary care practices over 3 months. Two cohorts per pilot were recruited from adolescents who indicated at their clinic visit that they wanted to increase their physical exercise. The first cohort was the control and its participation was limited to survey completion. The second cohort received post-visit supports for exercise via cell phone text messaging and had access to the social network site. Teen acceptability and short-term-change efforts were assessed.

Specific Aims:

- Enhance the TXT ME PDA-based health risk screening tool with clinician prompts to support effective counseling for exercise uptake and tobacco cessation from evidence-based literature and existing public health and patient counseling programs. **(Achieved)**
- Develop the format, message delivery algorithm, and technological processes to link PDA-based teen health screening data from the primary care visit to tailored followup health behavior change text

messages delivered by cell phone. **(Achieved)**

- Develop the prototype of adolescent health behavior change support via a social network Web site that links adolescents in the project and provides access to Web-based resources. **(Achieved)**
- Conduct a small feasibility trial of the exercise component of the TXT ME model that will use PDA technology to screen adolescents who are interested in changing exercise patterns and prompt clinicians to provide reinforcement via post-visit text messaging to help teens make these changes. Evaluation will include short-term outcomes related to text message design and health behavior outcomes. **(Ongoing)**

2011 Activities: The study staff recruited patients for study participation. In Phase One of the study, participants were offered counseling about exercise during office visits. In Phase Two, intervention arm participants received 6 weeks of brief daily text messages to provide motivational and practical support. Enrollees participated in three phases of data collection. The following information was collected at baseline: physical exercise in last 24 hours and past 3 days; whether the doctor discussed exercise during the last clinic visit; exercise goals and changes for the next month; attitude about exercise; stress level; access to exercise equipment; barriers to exercise; time spent on computer and watching television; and health risks. At the end of the intervention period, follow-up data was collected on changes in attitude about exercise, level and amount of time spent exercising, stress, and access to exercise equipment. One month after the intervention, the same follow-up data was collected. Qualitative interviews were conducted with a subset of participants to assess usability and likeability.

As last self-reported in the AHRQ Research Reporting System, project progress and activities are mostly on track with the revised timeline, and the project budget is roughly on target. A 6-month no-cost extension was used to allow for a lengthier recruitment period so that the research team was able to meet their recruitment goals.

Preliminary Impact and Findings: A total of 3,811 adolescents in eight primary care practices were screened for health risks. Forty-eight percent (1,840) expressed interested in increasing their exercise level, and 35 percent (622) of those expressed interest in learning about the study. Four-hundred-and- eighty-nine patients met the eligibility criteria and 208 enrolled in the study. The study cohort was 69.5 percent female and the mean age was 15.5 years.

Qualitative interviews were conducted with 20 study participants. Overall, feedback was positive and indicated that the study was well received. The nutrition text messages were very popular among participants. Most study participants preferred pragmatic messages that provided useful tips or information, as opposed to the motivational messages. About half of the participants who used the social network Web site ranked it favorably. The other half of study participants did not use the Web site because it was viewed as another system to log into. Feedback was mixed regarding early morning text messages; however, there was agreement that the frequency of messages was appropriate.

Quantitative data analysis indicated that providers discussed exercise 44.7 percent of the time and that 97 percent of participants found the discussions somewhat or very helpful. Forty-eight percent of children started exercising when counseled by their doctor, while 30 percent initiated exercise without counseling. Physician counseling was positively associated with increasing exercise and beginning new types of exercise. The text messages combined with counseling from providers resulted in a two-fold intervention. In 2012, the research team will focus on the analysis of the next messaging intervention.

Target Population: Obesity, Teenagers

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: Knowledge Creation
