

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

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<b>Organization:</b>	Dartmouth College
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**Summary:** Adolescence is a time of rapid and complex change during which health risks may stem more from behavioral than biomedical factors. While many behaviors are experimental, habits and coping patterns acquired during this developmental stage may continue into adulthood. Research has shown that school-based interventions for major risks are often nominally or not at all effective. Interventions that use motivational interviewing and technology to enhance screening and counseling of adolescents are costly, intensive, and require additional time, staff, and computer resources not generally available to most primary care providers. This project utilized 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. 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 efforts to change. The text messages also informed teens about developments and new network site links.

### 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. **(Achieved)**

**2012 Activities:** The focus of 2012 was quantitative data analysis and dissemination of study results. A 6-month no-cost extension was used to allow for a lengthier recruitment period so that the research team could meet their recruitment goals. As last reported in the AHRQ Research Reporting System, project progress was on track and budget spending was on target. This project was completed in March 2012.

**Impact and Findings:** Feasibility pilots of the TXT ME program were implemented at eight primary care practices. Adolescents were screened for health risks at preventive care visits and those interested in improving health behaviors were eligible to participate in the study. In Phase One of the study, participants were offered exercise counseling 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 data collection at baseline, at the end of the intervention period, and 1 month after the intervention. 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, followup 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 followup data was collected.

A total of 3,811 adolescents were screened for health risks. Forty-eight percent (1,840) expressed interest 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.

Quantitative analyses 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. Increased exercise was also predicted by body mass index greater or equal to 95 percent, perceived stress, and importance of exercise. The TXT ME intervention improved time spent exercising by an average of 48 minutes compared to control.

Qualitative interviews to assess usability and likeability were conducted with a subset of 20 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 half who did not use it did not because it was viewed as another system to log into. Feedback on early morning text messages was mixed but there was agreement that the frequency of messages was appropriate.

Overall, the study indicated that coupling motivational counseling with text messages is a feasible approach to support improvement in adolescent exercise habits.

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**Target Population:** Obesity, Pediatrics\*, 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

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