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On the Way to Health

Editor's note: Information technology (IT) has fundamentally changed the way we work, bank, and communicate. Its impact on health care and health research, however, has been limited by the lack of a comprehensive infrastructure to connect patients, providers, and researchers. As we learn more about how to address the unhealthy behaviors that underlie many chronic conditions, researchers are seeking IT solutions to connect to patients in scalable ways. This Issue Brief describes the development and use of a new web-based IT platform, Way to Health, to deliver and evaluate behavioral interventions to improve health.

IT platform can facilitate participation in studies to improve health behaviors

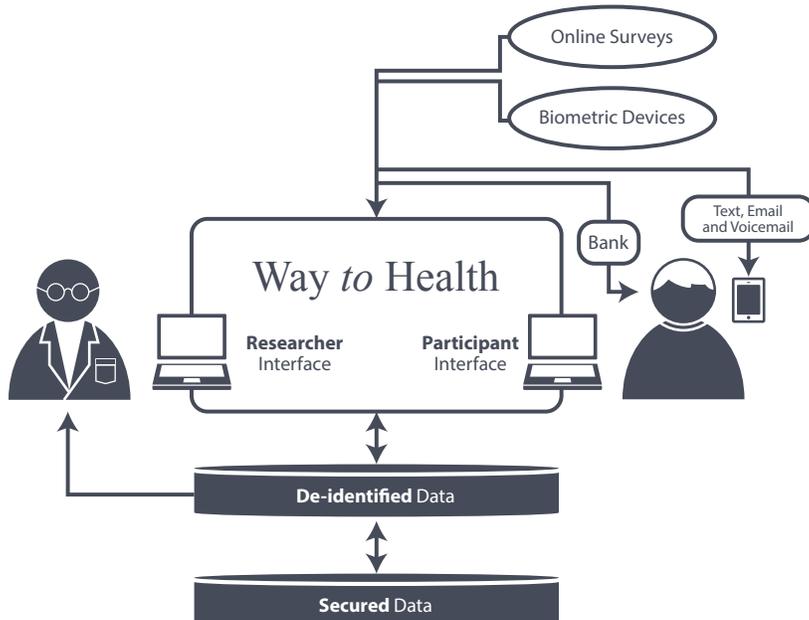
Health care financing is shifting from a reactive visit-based model to one in which health systems will increasingly be financially responsible for the health of populations. This highlights the urgency of developing better tools for management of chronic illnesses such as heart disease and diabetes, which account for a large proportion of premature mortality and health care costs in the US and across the world. Much of this burden stems from behaviors people could change, and want to change, such as smoking or not exercising enough, or not taking prescribed medications. Insights from the field of behavioral economics have shown promise in increasing healthy behaviors, but these studies are often time- and labor-intensive.

- Interventions such as financial incentives, timely feedback, and social support typically require frequent (often daily) contact, which can be expensive, challenging for researchers, and burdensome for participants.
- An IT platform, using the web and wireless technologies, could automate key aspects of this research, including tracking participants, monitoring outcomes, and delivering and receiving participant feedback. It could also provide patients, other members of the general public, and public and private sector organizations with a web portal into innovative research on behavioral approaches to improving health.
- The NIH funded investigators at the University of Pennsylvania to build a comprehensive IT platform on which to deploy and test behavioral interventions. The team called their platform "Way to Health" as homage to Benjamin Franklin's 1758 *The Way to Wealth*, a short guide to wealth and prosperity.

Way to Health electronically links researchers and study participants, and automates communication

After two years of development, researchers are now using Way to Health to conduct randomized-controlled trials of complex behavioral health interventions online. The platform consists of three interconnected areas: the study participant sites, the researcher tools, and a secure database.

- Way to Health was designed around the needs of its intended users with pilot research projects guiding its development. These projects are testing novel ways to increase healthy behaviors such as medication adherence, smoking cessation, weight loss, and exercise. Researchers are testing various forms of financial incentives, such as lotteries and deposit contracts, and other behavioral interventions such as daily feedback and social networking.
- The platform includes functions needed across projects, and others specific to one or more projects. Whenever possible, the developers integrated existing software into Way to Health. Researchers can build surveys, randomize participants, program and send voice and text messages, receive data, provide feedback, and pay participants through the platform by sending electronic instructions to banks that transfer money.
- Way to Health connects researchers, participants, and wireless biometric devices such as glucometers, scales, blood pressure cuffs, pedometers, and “smart” pill bottle tops. It also handles financial transactions and has audit, compliance, and controller functions.



What Way to Health looks like to study participants

The participant sites are the most visible part of Way to Health. To users it feels like an account-based web site. Study participants set up an account with personal login information.



- Throughout the study participants use that account to answer survey questions, communicate with the research team and report on progress, although in many cases this reporting occurs automatically through wireless devices. The system aims for enough automation to minimize participant effort.
- Prospective participants can complete a survey to determine their eligibility for each study, and can give informed consent through the platform.
- Individual studies, programmed by the researchers to a study-specific part of the Way to Health platform, determine the content of the participants' web sites. For example, the weight-loss projects include charts as feedback about progress while another study, looking at the effect of community on weight loss success, incorporates a social network function for participants.

What Way to Health offers researchers

The researcher tool area is where researchers build their studies using a variety of customizable, modular elements. Templates guide the design, although researchers can control the text layout and select images on their own. Required content such as informed consent documents and financial forms are pre-formatted.

- The platform automates many aspects of “encounters” in which participants provide information to the research team. Participants can upload data or answer a survey.
- It also automates feedback, in which the research team provides information to the participants. The research team can establish rules that automatically notify participants that they won a lottery or that they have not provided data when expected.
- Monetary incentives are handled through an interface with a national bank. Messages are delivered through an interface with an existing text-message service.
- The connections to the secure database are structured to limit exposure of confidential health and financial information and prevent release.

Way to Health, in action

About a dozen studies are currently using Way to Health to test behavioral economic interventions. “Way to Quit” is testing deposit contracts, fixed payment, and a pari-mutuel (betting pool) as incentives for smoking cessation; “Way to Walk” is testing whether lotteries and connection to a new group of peers can encourage older adults to walk more. Two workplace weight-loss studies have just been completed and although the results are still being analyzed, illustrate the platform’s utility.



- At the Children’s Hospital of Philadelphia, obese employees were given the goal of losing one pound per week for 24 weeks, and randomized to receive monthly weigh-ins alone, or \$100 per month for reaching their monthly target weight, or \$500 per month for groups of five employees with the reward split between group participants who reached their monthly target weight.
- At Horizon Blue Cross Blue Shield, obese employees were given similar goals with variations of deposit contracts as a financial incentive. Participants put their own money at risk, and lose that money if they fail to achieve their weight loss goal. Some participants were randomized to receive either a 1:1 match or a 2:1 match for their deposits.
- In both studies, participants weigh themselves on a Way to Health workplace scale. The scale sends the weight electronically to the platform server, which calculates the incentive and sends a text or email. Incentives earned are transferred electronically to the participants, who can log in to see their progress.

POLICY IMPLICATIONS

Way to Health provides a sustainable IT infrastructure for conducting behavioral economic studies that could be a gateway for health system innovations to improve management of population health. It gives researchers off-the-shelf tools to build customized websites and gives participants interactive online homes that can display their progress and report their data through integrated wireless biometric devices. In most cases, the participant interaction is minimal, because the platform automatically connects with medical devices.

- Technologies that automate two-way communication will improve our ability to leverage insights from behavioral economics into more effective population health programs. Next generation incentives will increasingly use wireless devices to measure patient behavior and social media to provide ongoing feedback, rather than relying on existing communication channels.
- Most employers already offer financial incentives to promote healthy activities among employees. The Patient Protection and Affordable Care Act (ACA) will allow employers to increase outcome-based incentives to 30% of total premiums in 2014. Use of new technologies such as the Way to Health platform could help employers and insurers create more effective incentive programs.
- Way to Health facilitates collaboration among researchers and external partners. For example, “Healthy Steps” is a collaboration between Penn and United Health Care and AARP; “Way to Quit” involves Penn, CVS Caremark, and Minuteclinic. These collaborations allow real-world tests of differently designed incentives to identify ones that help motivate participants to achieve and sustain behavior change.

For more information on Way to Health, see <http://waytohealth.org/>

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