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Health e-Technologies: Building the Science of eHealth

An RWJF national program

SUMMARY

The Robert Wood Johnson Foundation (RWJF) launched *Health e-Technologies: Assessing New Tools for Chronic Disease Management and Health Behavior Change* in 2002 (the tagline was changed to *Building the Science of eHealth* in 2004). The program supported research to evaluate the effectiveness of technological "e-health" applications in improving health behaviors and chronic disease management and in enhancing patient-provider interactions. *Health e-Technologies* funded three kinds of projects:

- Ten methodology and design projects addressed methods, measures, instruments, data analysis and research designs for evaluating technology e-health applications.
- Eight outcome evaluation projects conducted systematic evaluations of existing e-health applications designed to change health behaviors or manage chronic diseases.
- Six Web portal projects examined the use of "portals"—secure Internet sites for access by patients and providers—for clinical communications, administrative transactions, medical record access and health management programming. These were funded under a second call for proposals.

Key Program Results

- According to staff at the national program, the evaluator and RWJF, the major accomplishment of *Health e-Technologies* was its contribution to the evidence base for the e-health field.

  The view of Program Director David Ahern, Ph.D., is representative: "Our most significant result was the investment in research. There was a wide range of states, technologies, patient populations, geographic regions. We captured and catalyzed the e-health field, especially around research."

Key Project Results

The following are examples of projects and results in each program category; projects described in this report were chosen by the program officer at RWJF and the national program director:

Methodology and Design Projects

- Therapists who scored patients with a history of stroke face-to-face and therapists who scored the same patients on video were in exact or close agreement on most measures of physical functioning and speech-language. (MedStar Health Research Institute)
- There were no differences in the reliability of self-reported quality of life data collected via the Internet compared with data collected via mailed questionnaires. (Stanford University)

Outcome Evaluation Projects

- Adding nutrition and goal-setting programs to an existing Internet weight loss program (Balance®) did not result in different weight changes among people using the combined programs compared with weight changes among people using only Balance. (HealthMedia)
- Participants in a six-week Internet-based diabetes self-management workshop had small but statistically significant improvements in their blood glucose levels. In a related study (funded by RWJF, but not via *Health e-Technologies*), American Indians/Alaska Natives who participated in a culturally specific Internet-based workshop had the same levels of participation and used the same program features as non-American Indian/Alaska Native participants. (Stanford University)

Web Portal Projects

- Users of MiDieta™, an interactive meal planner and weight management computer program developed for Hispanic adults, experienced significant weight loss compared with users of a non-Hispanic-focused comparison program. (HispaniCare)
- Users of a personalized, interactive portal for patients with diabetes (D-STAR, Diabetes-System to Access Records) accessed the portal more often and over a longer period than users of a system with only generic diabetes information. (University of Colorado Health Sciences Center)

Program Management

Brigham and Women's Hospital in Boston was the national program office for *Health e-Technologies*. Ahern, an assistant professor of psychology, Department of Psychiatry, Harvard Medical School and research psychologist, Department of Psychiatry, Brigham

and Women's Hospital, was national program director. Judy Phalen, M.P.H., served as deputy director.

Funding

Authorized by the Board of Trustees in October 2001 for $10.3 million.

CONTEXT

"The pen, the printing press, the telephone, radio and television—these are some of the pivotal technologies in history that have permanently redefined how we communicate with each other. In the last decade, the computer and the Internet have joined the ranks of these defining technologies." So notes Thomas R. Eng, V.M.D., M.P.H., of EvaluMetrix, L.L.C. in a 2001 report written by Eng and commissioned by RWJF.

Eng goes on to say that in January 2001, approximately 168 million Americans (60 percent of the population) had access to the Internet at home or work. As many as 86 percent of adult Internet users accessed the Internet for information on health care or specific diseases.

The Role of e-Health

e-Health is the use of interactive technologies to facilitate improvements in personal health and in health care services. Interactive technologies include the Internet, interactive TV and voice response systems, kiosks, personal digital assistants and DVDs.

Although numerous health websites were available by 2001—and some showed a promising early track record—knowledge about the quality and effects of these applications on patients' ability to change their health behaviors or manage their diseases was limited. The technologies had not been systematically or rigorously evaluated and little was known about their capabilities (such as personalized and tailored communications) to deliver effective care and foster productive patient-provider interactions.

RWJF Interest in the Area

Robin Mockenhaupt, Ph.D., M.P.H., RWJF chief of staff and a key architect of *Health e-Technologies* described the environment and RWJF's interest in e-health this way:

"We knew that consumers were using the Internet more and more. The Internet was coming into its own in the '90s and people were using it seeking health and medical information. All of this prompted us to take a look at the Internet space and what consumers were doing online to manage their health and medical care. We funded the

evaluation of some self-management online programs and also the evaluation of the quality of consumer health care information online."

RWJF held several expert meetings on the subject. Staff wanted to learn what was important in this area and what the major gaps were. They heard from the experts that a major gap was the lack of an evidence base for interactive e-health applications.

RWJF also engaged Eng to prepare a report on the status of e-health in the United States, *The eHealth Landscape: A Terrain Map of Emerging Information and Communication Technologies in Health and Health Care*, mentioned above. It summarized the major players, issues, trends and technologies in the e-health arena and "helped shape the program for *Health e-Technologies*," according to Mockenhaupt:

"Then we started *Health e-Technologies*. We knew that there was a lot of material online, but there was not a lot of research on the assessment and evaluation of this online information, especially for major chronic conditions, using the tools and techniques within consumers' abilities. That was the genesis of this program. We wanted to encourage others to assess the question of what was going on online."

RWJF Assistant Vice President, Health Group, Stephen J. Downs, S.M., offered a similar assessment:

"The development of the program was around the dot-com heyday, when there were all of these health-related dot-coms springing up. There was a lot of activity but not a lot of science or evaluation. We didn't know if things worked, or even how to tell if they worked. So the purpose of the program was to build the evidence base and to advance the field of evaluation and research of e-health. That was the underlying rationale."

RWJF launched *Health e-Technologies: Building the Science of eHealth* to address the lack of information about e-health, particularly interactive e-health.

Over time, RWJF's approach to promoting quality and equality in health care has evolved to focus on improving care in targeted communities, increasing consistency and transparency in performance measurements, improving and expanding research and communicating results. See What We Fund for more information about RWJF's efforts in this area.

THE PROGRAM

In October 2001, the RWJF Board of Trustees authorized $10.3 million for five years for *Health e-Technologies*.

Goals and Priorities

Health e-Technologies: Assessing New Tools for Chronic Disease Management and Health Behavior Change (the second part of the title was later changed to *Building the Science of eHealth*) funded studies to evaluate the effectiveness of e-health applications in improving health behaviors and chronic disease management and in enhancing patient-provider interactions.

The goals of *Health e-Technologies* were to expand knowledge about:

- Efficacy, costs, cost-effectiveness and overall quality of existing e-health applications for health behavior change and chronic disease management.
- How to evaluate, compare and improve these applications.

The program also emphasized studies that assessed e-health efforts to reach specific populations, including ethnic and racial minorities, older adults, low-income families and people with disabilities.

Categories of Grants

The program funded projects in three categories that experts in the field determined warranted exploration:

- *Methodology and design* studies leading to new methods and measures for evaluating e-health programs
- *Outcome evaluations* of existing e-health applications
- *Web portal studies* examining the use of interactive, secure Internet sites in delivering health programs or enhancing communications

Grants were not to support development of e-health applications.

A call for proposals issued on October 31, 2002, addressed the first two categories and a second call for proposals issued on March 15, 2004, addressed the third.

Projects Focused on Methodology and Design

Projects supported under this category were to address one of the following priorities:

- Refining or developing methods, measures, instruments and data analysis approaches that could be used to evaluate the effectiveness and efficacy of e-health applications

- Refining or developing research designs that accommodate unique aspects of e-health applications
- Evaluating innovative research paradigms
- Developing strategies and methods that increase access to e-health applications for specific, and often underserved, populations
- Improving methods for evaluating the costs and cost-effectiveness of adopting and using e-health applications

Grants were planned for time frames of six to 12 months and funding of up to $100,000 each.

Projects Focused on Outcome Evaluation

Projects funded in this category were to conduct systematic outcome evaluations of existing e-health applications for either:

- Health behavior change: Applications that teach/communicate/support healthy behaviors such as physical activity, proper nutrition, tobacco cessation or nonviolence
- Chronic disease management: Applications that enhance self-management skills and strategies for managing chronic diseases and conditions such as heart disease, asthma, diabetes, cancer, mental illness and HIV/AIDS

Grants were planned for time frames of up to 36 months and funding of up to $500,000 each. *(NOTE: the original call for proposals indicates $600,000, but this was ultimately reduced to $500,000 before any projects began.)*

Projects Focused on Web Portals

Health e-Technologies defined a "portal" as a secure Internet-based site containing software tools that offer a range of functions and access for patients, their agents and their providers to a wide array of information. In contrast to public websites, portals ensure the privacy and confidentiality of patients' health information through security technologies.

Research funded under this category was to focus on one or more of the following topics:

- Enhancing patient health status, outcomes and healthy behaviors
- Improving communication between patients and providers
- Encouraging and augmenting patient activation (skills, knowledge and motivation to manage a chronic illness), involvement and decision-making in the care process
- Increasing access to traditionally underserved groups, addressing language, literacy and cultural relevance for ethnic and racial minorities, older adults, low-income families and people with disabilities

- Improving efficiency in the processes of care
- Enhancing cost-effectiveness
- Demonstrating patient and provider satisfaction

Grants were planned for 24 months and amounts of up to $400,000 each.

Management

National Program Office

Brigham and Women's Hospital in Boston served as the national program office for *Health e-Technologies*. David K. Ahern, Ph.D., assistant professor of psychology at Harvard Medical School and research psychologist, Department of Psychiatry, Brigham and Women's Hospital, was program director. Judy Phalen, M.P.H., was deputy director.

The national program office provided a range of technical assistance to grantees that included a website, annual grantee meetings, conference calls and other activities.

National Advisory Committee

A 12-member national advisory committee of e-health experts provided guidance to program staff and grantees. Committee members developed grantee selection criteria, made final funding recommendations to RWJF, attended annual grantee meetings and provided technical assistance to grantees as requested. See Appendix 1 for a list of advisory committee members.

Project Application and Selection Phase

National program staff undertook the following activities to guide applicants and select projects for funding:

- Developed and launched a program website: *www.hetinitiative.org*
- Developed an online letter of intent review section of the website and trained national advisory committee members and other reviewers on its use
- Developed content for and populated RWJF's grantmaking online system for the full proposal submission and review process
- Hosted meetings of the national advisory committee to review grant applications

In response to the first call for proposals, 839 potential applicants registered on the letter of intent page on the website. Some 596 completed letters of intent.

The national program office invited 63 of those applicants to submit full proposals. The national advisory committee reviewed these proposals and recommended 18 to RWJF.

The 18 projects funded (September 2003) under the first call for proposals were:

Methodology and Design Projects

See the Methodology and Design Awards section of *Health e-Technologies*. website for summaries of the projects.

- Factors Influencing Log-On Rates in an eHealth Obesity Prevention Program Promoting Healthy Eating and Physical Activity to 8–10 Year Old African American Girls

  Baylor College of Medicine, Department of Pediatrics, Houston

- Development of a Longitudinal Qualitative Methods Manual and Quantitative Instrument for Evaluating Use of Multi-Contact eHealth Technologies by Patients and Consumers

  Boston Medical Center, Medical Information Systems Unit, Boston

- Creation and Evaluation of a Discourse Coding System to Assess the Benefits of Online Discussion on Mental and Physical Health

  Carnegie Mellon University, Human-Computer Interaction Institute, Pittsburgh

- Measuring Exposure to Online Health Messages Among Adolescents

  Johns Hopkins Bloomberg School of Public Health, Department of Population and Family Health Sciences, Baltimore

- Development of an eHealth Provider-Patient Communication Measure

  Kansas University Medical Center, Center for Telemedicine & Telehealth, Kansas City, Kan.

- Reliability of Outcome Data Collected via Internet

  Stanford University School of Medicine, Patient Education Research Center, Palo Alto, Calif.

- Effectiveness Measures for Telerehabilitation

  MedStar Research Institute, Hyattsville, Md.

- Validation of Quality Criteria for Health Information on the World Wide Web

  The University of Texas Health Science Center at Houston, School of Health Information Sciences, Houston

- Evaluating the Effectiveness of an eHealth Application to Improve Chronic Disease Management by Urban, Minority Children

University of California Los Angeles School of Medicine, Department of Medicine/Division of Clinical Immunology and Allergy, Los Angeles

- An Evaluation Framework for eHealth Survey Applications

  University of Washington, Department of Health Services, Seattle

Outcome Evaluation Projects

See the Outcome Evaluation Awards section of *Health e-Technologies*. website for summaries of the projects.

- Efficacy of a Web-Based Tailored Weight Management Program With and Without Tailored Nutrition and Goal Setting Support

  HealthMedia, Inc., Ann Arbor, Mich.

- Assessment of a Hand-Held and Internet Information Technology System to Improve Management of Cancer Related Pain, Fatigue, and Depression

  The MedStat Group, Washington

- Empowering Elders Through Technology

  The Pennsylvania State University, Department of Health Policy and Administration, University Park, Pa.

- Using Tailored E-Mails to Motivate Healthy Behavior, Improve Health Status, and Reduce Health Care Costs in Employee Populations: A Randomized Trial

  University of Massachusetts Medical School, Worcester, Mass.

- Internet Diabetes Self-Management: A Randomized Trial

  Stanford University School of Medicine, Patient Education Research Center, Palo Alto, Calif.

- Comparing the Effects of an Internet-Based to an Established Dyspnea Self-Management Program on Dyspnea, Exercise Behavior and Pulmonary Exacerbations in Patients With Chronic Obstructive Pulmonary Disease (COPD)

  University of California San Francisco School of Nursing, Department of Physiological Nursing, San Francisco

- Health eCommunities: The Impact of Listservs on Cancer Patients

  The University of North Carolina at Chapel Hill, Lineberger Comprehensive Cancer Center, Chapel Hill, N.C.

- A Randomized Controlled Trial of Diabetes Disease Management Over the Internet

  University of Washington, Department of Medicine, Seattle

Some 99 potential applicants responded to the second call for proposals. The national program office invited 18 to submit full proposals and the national advisory committee recommended six of these sites to RWJF for funding.

The six organizations funded (September 2004) under the second call for proposals were:

Web Portal Projects

See Web Portal Awards section of *Health e-Technologies*. website for summaries of the projects.

- Weight Management for a Defined Employee Population Using an Interactive eHealth Portal

  Aurora Health Care, Inc., Milwaukee

- Improving Chronic Disease Care With PatientSite

  Beth Israel Deaconess Medical Center, Boston

- Does Access to an EHR Patient Portal Influence Chronic Disease Outcomes? A Randomized Trial Assessing Clinical and Behavioral Change Outcomes in Patients With CHF, Diabetes, or Secondary CVD

  Geisinger Clinic, Danville, Pa.

- Evaluation of the MiDieta™ (MyDiet) eHealth Portal to Facilitate Improved Diets, Increased Fitness Levels and Weight Loss Among U.S. Hispanics

  HispaniCare™ (DrTango, Inc.), Roswell, Ga.

- The Potential of Technology to Improve Chronic Disease Management and Quality of Care

  The Cleveland Clinic Foundation, Cleveland

- D-STAR (Diabetes-System to Access Records): An Online Patient Portal to Improve and Sustain Diabetes Self-Care

  University of Colorado Health Sciences Center, Denver

See Appendix 2 for details on the grants and contact information.

The Implementation Phase

During the implementation phase, national program staff:

- Regularly enhanced the program website, adding a bulletin board, library, grantees section and a resources section with news, events, a collaboration community, funding opportunities and other information

- Hosted three annual grantee meetings, in October 2003, October 2004 and December 2005
- Provided individualized, hands-on technical assistance to grantees as needed. Assistance included help in writing reports, developing budgets, overcoming research design and implementation challenges, linking grantees to other researchers, preparing for presentations to institutional review boards, accessing research findings, locating funding sources, disseminating research results, etc.
- Engaged Russell Glasgow, Ph.D., and colleagues at Kaiser Permanente Colorado to assist national program staff in working with the Web portal grantees to develop and implement the following common measures across portal projects:
  - Health literacy
  - Physical activity
  - Quality of life
  - RE-AIM elements. RE-AIM is a five-step framework to translate research into action: Reach, Efficacy, Adoption, Implementation and Maintenance.
- Established affiliations and collaborations with other e-health and health information technology initiatives and organizations to advance the field of e-health and the use of evidence-based e-health applications. Examples include:
  - National Institutes of Health (NIH) Office of Behavioral and Social Sciences Research
  - National Cancer Institute
  - eHealth Initiative, an affiliation of 200 members dedicated to improving health care quality, safety and efficiency through information technology
  - Center for Information Technology Leadership
  - *Games for Health*, an initiative of RWJF
  - *Project HealthDesign*, an initiative of RWJF
- Provided advice on e-health and health information technology to:
  - Other RWJF national programs such as: *Prescription for Health*, *Executive Nurse Fellows Program* and *Health Games Research: Advancing Effectiveness of Interactive Games for Health*
  - NIH Office of Disease Prevention and Health Promotion
  - Centers for Excellence in Cancer Communication Research

— National Center for Health Marketing at the Centers for Disease Control and Prevention (CDC)

Related Project: Role of e-Health in Preventing Childhood Obesity

In 2005, RWJF awarded a synergy grant (ID# 053734) to *Health e-Technologies*' national program office to address the role of e-health in preventing childhood obesity. RWJF has provided synergy grants to national programs that are—or could be—addressing some aspect of childhood obesity. By expanding these programs instead of launching new ones, RWJF leveraged the expertise of the program staff and avoided the costs of setting up new offices. Other synergy efforts in childhood obesity involved the national program offices of *Active Living by Design*, *The Diabetes Initiative*, *Active for Life* and *Injury Free Coalition for Kids*. Links go to Program Results where available.

Between 2005 and 2007, researchers reviewed published research and commentary about technology and childhood obesity, convened an interdisciplinary panel of experts to explore perspectives and issued a report, *Childhood Obesity Prevention and Reduction: Role of eHealth*. See Program Results for more information.

Related Role: Helping RWJF Launch New National Programs

The national program office also helped RWJF launch two new national programs: *Project Health Design* in June 2006 and *Consumer Voices for Coverage* in June 2007. Staff provided management and technical assistance to these programs on tasks ranging from issuing the calls for proposals through selecting grantees and overseeing program websites.

OVERALL PROGRAM RESULTS

- **According to staff of the national program, the evaluator and RWJF the major accomplishment of *Health e-Technologies* was its contribution to the research evidence base for the e-health field:**
  - Program Director David Ahern: "Our most significant result was the investment in research in a wide range of states, technologies, patient populations, geographic regions. We captured and catalyzed the e-health field, especially around research."
  - Deputy Director Judy Phalen: "[A key result] is setting a national agenda and elevating the need for research in the field. … Without a doubt, the most significant impact of HETI's [*Health e-Technologies*] tenure was 'building the science of e-health.'"
  - Evaluator Seth L. Emont: "*Health e-Technologies* filled a unique niche because it provided the evidence behind the projects and products it was disseminating."

- RWJF Assistant Vice President, Health Group, Stephen J. Downs: "It added to the evidence base around e-health."
- RWJF Senior Program Officer Michael W. Painter: "*Health e-Technologies* helped make the case for and scratched the surface of building the field of evidence-based electronic technology for health care."

Communications Activities and Results

To document, disseminate and further the evidence base for e-health that grew out of *Health e-Technologies*, national program staff created a website, prepared publications and convened and presented at conferences. Many of these materials are available on *Health e-Technologies* website. See the Bibliography for details.

National program staff:

- **Designed the program website to support the emerging e-health field, with features that include:**
  - A resource and communications center that contains:
    - *Health e-Technologies*-generated publications and presentations
    - A "Best eHealth Research Paper" award, given at each of the three eHealth Developers Summit, an annual national meeting of e-health business leaders, developers, researchers and funders
    - Funding opportunities
    - A library of e-health literature
    - A media center of press releases related to the program
    - Health e-Bytes, a series of opinion articles on e-health issues and topics
    - The eHealth Landscape, a compendium of *Health e-Technologies* connections with other organizations and programs, information on up-and-coming e-health researchers and journals publishing articles relevant to e-health
  - A collaboration community that allows researchers to communicate with one another to strengthen research to improve the quality, processes and outcomes of health care through e-health applications
  - Grantee information, including:
    - Descriptions of grantee projects
    - Links to 46 articles and abstracts of grantee research
    - Links to 33 research tools developed by grantee staff

- **Authored:**
  - Four articles published in peer-reviewed journals (including *American Journal of Preventive Medicine* and *Journal of Medical Internet Research*)
  - Two book chapters
  - A booklet titled: *Using eHealth Interventions to Engage Consumers—A Practical Guide*
- **Coordinated the development and writing of *Mastering the Methodological Challenges for Evaluating eHealth Research,*** a special section of the November 2006 issue (vol. 29:4) of *Evaluation and Program Planning.* The special section includes an introduction by national program staff and seven articles authored by grantees.
- **Published 17 issues of a quarterly e-newsletter, *Health e-Technologies*.**
- **Co-sponsored multiple conferences and meetings on e-health topics with a variety of organizations, including:**
  - *Hot eHealth Research Results and Translating Findings Into eHealth Practice* at the eHealth Developers Summit (four times)
  - *Patient-Centered Computing and eHealth,* a Harvard Medical School CME course (two times)
  - *Critical Issues in eHealth,* a National Institutes of Health conference (two times)
- **Stimulated NIH to create program announcements and requests for proposals to support research in e-health across multiple medical conditions**
- **Made presentations at more than 25 conferences, meetings and courses, including:**
  - Society of Behavioral Medicine Annual Meeting and Scientific Sessions
  - American Psychological Association Annual Convention
  - American Academy of Health Behavior Annual Conference
  - Capitol Hill Steering Committee on Telehealth and Healthcare Informatics
  - Gerontological Society of America's Annual Scientific Meeting

See the Bibliography for details.

KEY PROJECT ACTIVITIES AND RESULTS

An overview of key site project activities and results from six projects chosen by the RWJF program officer and the national program director is included in this section. For a brief description of the other 18 projects, see the Grantee Information page on *Health e-Technologies* website.

Methodology and Design Projects

Methodology and design studies focused on developing new methods and measures for evaluating e-health programs.

Effectiveness Measures of Telerehabilitation (MedStar Research Institute)

MedStar Health Research Institute is the research arm of Med Star Health, the largest health care delivery system in the Baltimore/Washington area. Staff at the institute conducts and supports medical research related to the prevention and treatment of major diseases.

Telerehabilitation is rehabilitation done remotely by audio and video transmission. It holds promise for helping people unable to travel to rehabilitation services, such as outpatient clinics, due to the very condition for which they need rehabilitation.

The goal of this project was to examine whether the use of telerehabilitation to assess physical functioning and speech-language of patients with a history of stroke produced results consistent with results produced by in-person assessments.

Five organizations collaborated on this project:

- Three rehabilitation providers:
  - National Rehabilitation Hospital, Washington
  - Sister Kinney Institute Rehabilitation Institute, Minneapolis
  - INTEGRIS/Jim Thorpe Rehabilitation Hospital, Oklahoma City, Okla.
- Two professional organizations:
  - American Physical Therapy Association
  - American Speech-Language Hearing Association

Patients who had suffered a stroke received two assessments:

- Physical Therapy Assessment: 12 patients in Minnesota and 12 in Oklahoma
- Speech-Language Assessment: 12 patients in Oklahoma and 12 in Washington

Patients were randomly assigned to either:

- On-site assessment by a therapist
- Remote assessment by a therapist via a high speed remote video connection

During administration other therapists (one face-to-face and one by video) simultaneously scored the assessment of each patient, while blind to each other's results.

Key Results

Researchers reported the following key results of the *physical therapy assessment* to RWJF:

- **On-site and remote therapists were in exact agreement more than 90 percent of the time on measures of gait, leg maintenance, fingers, gaze comprehension and level of consciousness.**
- **On-site and remote therapists were in exact agreement more than 80 percent of the time on measures of speech, wrist extension and arm raising.**
- **Statistical analysis indicated "substantial" to "almost perfect" agreement for all items except those related to speech, perception of visual fields and facial movement, which had "fair" or "poor" levels of agreement.**

Researchers concluded that, "Overall, the study demonstrates equivalence of assessing physical function for post-stroke patients on most items of the European Stoke Scale [ESS—the assessment tool used], using videoconferencing equipment. The ESS and Functional Reach [the other assessment used] are suitable for use in randomized, controlled trials of telephysical therapy for post-stroke patients who can follow instruction and have no field cuts in vision."

The *speech-language* instrument assessed patients on various indicators and converted information to a numerical scale. Researchers reported the following key results of the speech-language assessment to RWJF:

- **On-site and remote therapists were in exact agreement on three dimensions especially pertinent to the recovery from stroke by the following percentages:**
  - Motor speech: 46 percent of the time
  - Speech comprehension: 26 percent of the time
  - Speech expression: 38 percent of the time

- **Therapists were within one numeric point of agreement as follows** (for example, if the rating scale was 1-10 and one therapist scored the dimension an eight, the other would have scored that behavior as either a seven, an eight or a nine):
  - Motor speech: 96 percent
  - Speech comprehension: 91 percent
  - Speech expression: 96 percent

Reliability of Outcome Data Collected Via the Internet (Stanford University School of Medicine)

The goal of this project was to determine the reliability of self-reported quality of life data and behavioral and health care use data collected via the Internet compared with that collected from mailed surveys. According to Project Director Kate R. Lorig, R.N., Dr.P.H., "It had to be done since no one knew if people responded the same on the Internet as with a mailed questionnaire."

Project staff recruited 397 participants already enrolled in a separate project, the Chronic Disease Self-Management Online Project. They randomly assigned participants to complete the final questionnaire of the Self-Management Project either online or in writing via mail. The questionnaire included multiple measures that addressed factors such as:

- Overall health
- Illness intrusiveness
- Activity limitations
- Pain level
- Visit to physicians
- Hospitalizations

A separate group of 30 people completed identical Internet questionnaires twice within a few days in order to determine the test-retest reliability of the Internet method.

Key Results

Project staff reported key results to RWJF and in "Internet Versus Mailed Questionnaires: A Randomized Comparison," published in the *Journal of Medical Internet Research* (vol. 6) in 2004:

- **No differences were found in the reliability of data collected via the Internet compared with the data collected via mailed questionnaires.**

- **The test-retest reliability of the Internet data was not significantly different from that of the mailed data.**
- **A slightly (nonsignificant) higher completion rate with the Internet questionnaire was achieved with less follow-up effort than with the mailed version.**

Said Project Director Lorig, "We did it and it showed what we thought: that it didn't make a difference."

Outcome Evaluation Projects

Outcome Evaluation projects assessed existing e-health applications.

Efficacy of a Web-Based Tailored Weight Management Program With and Without Tailored Nutrition and Goal Setting Support (HealthMedia, Inc.)

HealthMedia was founded in 1998 by Victor J. Strecher, Ph.D., M.P.H., professor of health behavior and education at the University of Michigan School of Public Health. Strecher also founded the university's Center for Health Communications Research. A technology transfer grant from the university funded HealthMedia's start-up as the commercial arm of the center.

HealthMedia offers a spectrum of online programs designed to provide the benefits of a health coaching session "without the coach," according to the company website. These programs address topics such as physical activity, stress management, binge eating control, sleep improvement, smoking cessation and others.

With funding from *Health e-Technologies*, HealthMedia investigated two enhancements to its Internet weight loss program called Balance®. Balance collects weight management information such as health history, prior weight loss efforts, perceived barriers to change, nutritional habits and so on from the user and creates a six-week weight management plan tailored to the specific needs and interests of the user.

HealthMedia also had created two enhancement programs, but had not evaluated their effectiveness when used in conjunction with Balance. The enhancement programs were:

- Nourish—a nutrition program designed to influence dietary fat, fruit and vegetable, and fiber intake
- Achieve—a goal-setting program designed to adjust an individual's goals based on previous performance, attributions, self-efficacy and motivation

An earlier clinical trial demonstrated the efficacy of Balance, and project staff sought to confirm that result. They also evaluated the incremental efficacy of adding or combining Nourish and Achieve with Balance in achieving weight loss lasting 12 months.

A total of 2,311 overweight or obese participants from three health care systems (Kaiser Permanente Colorado, Kaiser Permanente Ohio and Group Health Cooperative in Washington state and Idaho) enrolled in the study. Staff randomly assigned participants to one of four groups:

- Balance only. This was the control group.
- Balance + Nourish
- Balance + Achieve
- Balance + Nourish + Achieve

Participants completed questionnaires at baseline and 12-months later. Questionnaires addressed motivation to lose weight, physical activity, dietary changes and use of and satisfaction with the program. Participants also reported changes in weight at the 12-month point. At 12 months, 1,108 of the original 2,311 participants (48 percent) self-reported weight data.

Key Results

Project staff reported the following key results to RWJF:

- **Overall, participants lost an average of 5.8 pounds by 12 months.** This was an average of 2.51 percent of body weight.
- **None of the intervention groups had statistically different weight changes or percent weight changes compared with the control group.**
- **Balance is an efficacious weight loss program on its own; the additional programs did not enhance the efficacy of the original Balance program.**
- **Participants who reported fewer exercise barriers such as lack of access to exercise facilities or outdoor exercise areas and who received Balance + Nourish + Achieve were more likely to lose weight, but the amount of weight they lost did not differ significantly from weight lost by participants in other groups.**
- **Initial and ongoing participant engagement levels were low for the Nourish and Achieve programs.**

A separate analysis of recruitment strategies and characteristics of people who remained in the Internet-based programs yielded the following results:

- **Personalized mailings to Kaiser Permanente members produced higher enrollment rates than general newsletters sent to Kaiser members.**

- **Enrollees under age 60 and those with higher self-efficacy were less likely to participate in the 12-month follow-up.** Other than these characteristics, those participating were similar to those not participating in the follow-up.

Project Director Kevin Wildenhaus, Ph.D., said that "people who only did the Balance program had similar results to the randomized, controlled trial we did with Kaiser Permanente, which confirmed the efficacy of the Balance program. In addition, these participants had maintained their weight loss at 18 months."

With regard to the addition of Nourish and Achieve, Wildenhaus noted that the company "made no attempt when branding or in the look and feel of the overall program to integrate the three programs. … This may have had an effect and, given this (along with some technical problems that caused a loss of sample size and power), we were not surprised at the outcomes."

Internet Diabetes Self-Management: A Randomized Trial (Stanford University School of Medicine)

This evaluation project was part of a large study funded by the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) as well as RWJF. In the larger study, researchers evaluated an Internet-based, small group Diabetes Self-Management Workshop Program in an 18-month randomized controlled trial involving 761 participants.

Participants completed the six-week Internet workshop—which included content on diabetes, bulletin boards where participants posted their weekly action plans, journals and a "help" section—and answered questionnaires on topics such as:

- Health-related quality of life (physical symptoms like fatigue and hypoglycemia), activity limitation and the impact of the disease on patient activities
- Health behaviors (aerobic exercise, stretching and strength exercise, communication with health care providers and practicing stress management)
- Perceived self-efficacy
- Patient activation (having the skills, knowledge and motivation needed to manage a chronic illness)

Participants also measured their blood sugar (HbA1c) level at home and reported it to researchers.

Key Results

Researchers reported results of the large study in an unpublished article titled "Online Diabetes Self-Management Workshop: A Randomized Study."

- **At six months the results were mixed.** There was a small but significant improvement in blood glucose levels among workshop participants compared with participants receiving usual care. Patient self-efficacy and patient activation also significantly improved for workshop participants.

  There were no changes in other health indicators (such as health related distress, activity limitations and depression), amount of exercise or number of physician visits.

- **At six months, participants who had initial blood glucose levels greater than the clinical standard of seven showed significantly greater improvement than participants with lower (and, thus, better controlled) initial blood glucose.**

- **At 18 months, self-efficacy and patient activation were also improved for workshop participants compared to those receiving usual care.** Blood glucose was not measured at 18 months because the laboratory analyzing the results began reporting unreliable data and then closed.

A Related Study: American Indians and Native Americans

The Robert Wood Johnson Foundation awarded a supplemental grant to Stanford as an adjunct to the work that had been done under the *Health e-Technologies* award. In this project, researchers conducted a separate test in order to learn whether American Indians and Alaska Natives, who are disproportionately affected by type 2 diabetes, would use or benefit from Internet workshops. In this test, researchers used the Internet to recruit to two groups: one with 27 American Indians/Alaska Natives and one with 27 people who were not American Indians or Alaska Natives.

After completing the workshop, participants attended an online focus group about the workshop.

Key Results

Researchers reported results of the study in an article in press (as of February 2010) in Health Promotion Practice, titled "The Internet Diabetes Self-Management Workshop for American Indians and Alaska Natives."

- **At baseline American Indian/Alaska Native participants had statistically higher weights and experienced statistically more symptoms of low blood glucose levels and more depression compared with non-American Indian/Alaska Native participants.**

- **No significant differences were found between the American Indian/Alaska Native and non-American Indian/Alaska Native participants in their participation in the workshop and use of its features.**

In addition, American Indian/Alaska Native participants reported:

- **The Internet provided health education information at a convenient time and pace, especially since they had limited time with their health care providers.**
- **The social support of the workshop was important and valuable.** Many American Indian/Alaska Native participants live on reservations or in other rural settings where they are not near their health care providers or other communities.
- **The workshop was culturally acceptable since it was an all American Indian/Alaska Native group.** The online dialogue was culturally specific and enabled participants to share their common experiences of living with diabetes.
- **The online workshop offered an outlet through which to discuss depression openly, which many found difficult to do with their families and communities.**

Project Director Lorig said: "Most researchers hesitate to do online programs with underserved people. But we need to get over that. It is, of course, not for everyone—for example, if someone can't read—but it is very paternalistic to think that these populations can't use the Internet."

Researchers concluded that "Native Americans can be recruited for Internet-based randomized trials and will participate in generic interventions as long as they are not culturally biased."

With additional funding from RWJF, project staff wrote two implementation manuals for the Stanford self-management programs: one for an in-person small group program and one for online programs. Both manuals contain sections on adapting and implementing the programs across different cultures.

Web Portal Projects

Web portal projects examined the use of interactive, secure Internet sites in delivering health programs or enhancing communications.

Evaluation of the MiDieta™ (MyDiet) eHealth Portal to Facilitate Improved Diets, Increased Fitness Levels and Weight Loss Among Hispanics (HispaniCare™)

HispaniCare (a division of DrTango, Inc.) provides online Hispanic marketing and communication services (including Spanish websites and bilingual consumer diet and food content) to food, diet and health care industries that serve the Hispanic market. The for-profit company was founded in 1999.

MiDieta is an interactive meal planner and weight management product created at HispaniCare. MiDieta offers dietary and fitness evaluations; an e-newsletter; tips on diet, fitness and behavior; recipes and other features.

According to Project Director Dirk G. Schroeder, Sc.D., M.P.H., "We had developed the MiDieta program and launched it with Univision [a Spanish-language television network] and some hospital partners. It was working and we had about a million people using it. We got good feedback, but I wanted to do a randomized, controlled trial of it to really know if it was working. So *Health e-Technologies* was very coincident with our timing. We wanted validation through a well-designed research project."

The overall goal of the HispaniCare project was to evaluate the ability of the MiDieta Web portal to facilitate improved diets, increased fitness levels and weight loss among Hispanic people in the United States. The project encompassed three separate studies of overweight Hispanic adults:

- Study with Blue Cross Blue Shield (BCBS)—Florida, completed May 2007. This included 201 participants randomized to one of four groups:
  - MiDieta Online
  - MiDieta Offline (same program, but in a noncomputer version)
  - Comparison Online (using a standard weight loss program)
  - Comparison Offline (using a standard weight loss program)
- Study with BCBS—CareFirst of Maryland, completed July 2008. This included 298 participants randomized to one of six groups:
  - MiDieta Online
  - MiDieta Offline
  - Comparison Online
  - Comparison Offline
  - MiDieta Online and MiDieta Offline
  - Comparison Online and Offline
- Study with BCBS New Mexico, completed November 2008. This included 240 participants randomized to one of two groups:
  - MiDieta Online and MiDieta Offline
  - Comparison Online and Offline

In each study, project staff used written surveys to collect dietary, physical activity and weight data at baseline and four months later. They also collected weight data at 12 months. In addition, the Florida study collected weight data at nine months.

Key Results

Project staff reported the following results to RWJF:

- ***Florida Study:*** **Average weekly weight loss was nearly twice as great among those using MiDieta (either online or offline) as it was for people in the comparison groups (either online or offline).** Differences were statistically significant at each follow-up period.
- ***Maryland Study:*** **Average weekly weight loss was greatest among the combined MiDieta online and offline group.** Members of the MiDieta groups generally lost more weight than members of the comparison groups.
- ***New Mexico Study:*** **Average weekly weight loss was nearly twice as much for members of the MiDieta online and offline group as for members of the the comparison online and offline group.**

Project Director Schroeder said, "There were very consistent findings across the three states. It showed that providing a culturally optimized diet and fitness program works better than just translating a program into Spanish."

D-STAR (Diabetes-System To Access Records): An Online Patient Portal to Improve and Sustain Diabetes Self-Care (University of Colorado Health Sciences Center)

D-STAR (Diabetes-System to Access Records) is an online patient portal that provides:

- A system within which clinicians and patients can communicate with one another
- Administrative transaction capability
- Patient access to electronic medical records
- Health behavior change and chronic disease management programs

D-STAR is designed for patients with diabetes and is intended to improve self-care in:

- Diet
- Exercise
- Medications/health status monitoring
- Smoking

The goal of the study was to assess the ability of D-STAR to improve self-care behaviors and health status for patients with type 2 diabetes. Some 331 people with diabetes who were patients at the University of Colorado Health Sciences Center participated. They were randomly assigned to the control group (166) or the intervention group (165). Each group received an online patient portal:

- Control group participants received a portal with the first two functions (communication and administrative transactions), as well as links to reputable websites with generic content on diabetes management.
- Intervention group participants received a portal with all four functions. In addition to access to laboratory and clinical records, this portal provided:
  - A home page with graphical presentations of the participant's adherence to guidelines for cholesterol, blood glucose level and blood pressure as well as recommended diabetes self-care activities.
  - An interactive goal-setting module for behavior change and disease management. Researchers adapted this module from the "Diabetes Priority Program," developed by Russell Glasgow and colleagues at Kaiser Permanente Colorado, which offered the module at kiosks in the outpatient clinic setting.

Researchers observed participant activity on the portals over a nine-month period.

Key Results

Researchers reported the following key results of the assessment of D-STAR to RWJF:

- **The personalized, interactive system (the intervention group's portal) resulted in more frequent and sustained use than the system with generic diabetes information (the control group's portal).**

  Some 61 percent of patients in both groups logged on during the first month, but over the nine months as a whole, the intervention group had 64 logins per 100 persons per month, compared with 24 logins per 100 persons in the control group.

  - By the six to nine month period, about 15 percent of intervention participants were logging into the portal, compared with 5 percent of control participants.
  - Over the nine months, some 45 percent of intervention participants reviewed laboratory notes and 32 percent reviewed clinical notes. Some 41 percent charted their blood glucose levels and 45 percent charted blood pressure. Control group members did not have access to these functions.
- **Goal setting was modest, despite multiple prompts throughout the portal.** Goal setting improved somewhat after an e-mailed recommendation. By the end of nine months, 60 percent of participants had set no goals, while 16 percent set one goal, 21 percent set two to five goals, and 2 percent set more than five. Most of the goals participants set were to improve diet (74 goals) and improve exercise (53 goals).
- **The personalized, interactive portal given to the intervention group was not associated with any improvement in diet, exercise, medication adherence or smoking over time relative to the control group.**

- **A comparison of goal-setters with nongoal setters in the intervention group resulted in no significant association between goal-setting and self-care outcomes.** Goal setting was less frequent and less effective than it had been in the original Diabetes Priority Program, in which patients accessed the portal via kiosks located in outpatient clinics.

  Researchers suggested that "e-health applications may be more effective if integrated into the care workflow than if they are stand-alone." Said Project Director Stephen E. Ross, M.D., "It is important to be especially directive to patients about how to make the most of the system. Tying the use of the program to the visit is really important."

- **Patients' online access to their medical records, including clinical notes, can occur without problems for patients or medical providers.** Researchers did not become aware of any problems related to patient online access to records, nor did patient or provider surveys identify any such problems.

A QUALITATIVE ASSESSMENT AND ITS FINDINGS

Assessment Design

RWJF contracted with White Mountain Research Associates, a consulting firm based in Danbury, N.H., to assess follow-up activities and resources required to help sustain and spread the contributions of *Health e-Technologies* to the field of e-health. Seth L. Emont, Ph.D., M.S., directed the assessment, which took place in 2006, during the course of the program, in order to provide recommendations for future potential endeavors.

The assessment included the following activities:

- Interviews with 30 opinion leaders in the e-health field about:
  - *Health e-Technologies*' niche and brand value in the field
  - Potential field-building activities
  - Strategies for assuring maximal impact of initiative products on the field
  - Networking activities
- Surveys of seven key stakeholders to explore the value added of e-health tools in engaging consumers and improving the quality of health care delivery.

Assessment Findings

White Mountain Research Associates reported findings in a report for RWJF and the national program office titled *Advancing eHealth: Opportunities & Challenges for the Health e-Technologies Initiative.*

- **Experts recommended activities, products and roles that *Health e-Technologies* could pursue to further the e-health field:**
  - Improve the evidence base around e-health applications by rigorous research and evaluation of e-health and Web-based technologies.
  - Continue to harvest findings from grantees and synthesize study results for use by researchers, consumers, providers, policy-makers and others.
  - Encourage collaborative—not competitive—efforts across stakeholders for targeted e-health research and interventions.
  - Establish the business case for e-health applications by examining reimbursement issues, return on investment and cost-benefit analysis.
  - Take a prominent role in generating measurable standards, criteria and guidelines for the development of e-health applications.
- **Experts identified technical assistance activities and tools that *Health e-Technologies* could provide to help expand the e-health field:**
  - Integrate e-health into existing and future RWJF initiatives.
  - Integrate information technology experts with the work of behavioral scientists to create workable solutions that aid the dissemination and adoption of e-health applications.
  - Establish small development grants to allow health care systems and researchers to refine products and provide scientific support to users.
  - Develop and disseminate a suite of e-health tools for decision support, behavior change, and health care and personal health records.
- **Experts offered ideas for engaging providers and consumers in improving the quality of health care through e-health applications:**
  - Reach underserved populations through interactive health communications that pay attention to issues of literacy, health literacy and cultural relevance.
  - Develop a quality assurance mechanism for consumer-based e-health applications to ensure these applications are easy to understand and use, accessible, low cost, timely, credible and secure.
  - Use personal health records to give consumers access to their health care information, personalized "care alerts" and support for chronic illness.
  - Engage consumers where they live by integrating e-health tools into community settings.

— Enhance the provider-patient relationship by using e-health tools to help motivate and reinforce patient behavior change and encourage patients to become more active participants in their own health care.

These recommendations helped guide the program's final years but several would have required new funding—beyond the program's authorization—to implement. RWJF chose not to develop a new funding authorization for the program as it was not directly related to any of RWJF program strategies at that time, according to Steven J. Downs, one of the program officers and assistant vice president of the Health Group.

However, many of the assessment findings were incorporated into other RWJF programs including *Project HealthDesign* and *Aligning Forces for Quality.*

LESSONS LEARNED

1. **Commit to handling administrative functions electronically in order to save time and money.** "We went all electronic and did everything electronically," said Deputy Director Judy Phalen. "We never even printed stationery. We saved enormous amounts of time and energy."

2. **Take the time to build the relationships that are critical to the development of a new field.** "This is very much a social process," said Program Director David Ahern. "You must understand who the players are and build respect, so you can get connected and have an impact."

3. **Consider a more frequent, regular connection among grantees than only the annual meeting.** While the national program office sent out newsletters about what the grantees were doing, it would have been helpful to be able to ask questions directly, according to HispaniCare Project Director Dirk Schroeder. "Maybe a monthly roundtable—perhaps in a Webinar format—would have been good, to discuss and update each other on what we were doing and the challenges we faced. It was a great group, working on the same thing. It would have been valuable to connect monthly."

4. **When considering meeting locations, choose sites with lots of nonstop flights, short trips from and to the airport and in geographic areas that are convenient to most grantees—the East Coast is not always the best location.** This will minimize travel time and disruption for attendees. (National Program Staff in a report to RWJF)

5. **Use a personal connection to encourage continued patient participation in programs and research studies.** HispaniCare found that over time study participants began to submit their weight record less frequently. Submissions increased after project staff began to remind patients by phone to submit their weight. (HispaniCare Project Staff in report to RWJF)

6. **Tailor recruitment strategies to the population you are trying to reach.** HispaniCare project staff found that direct mail was successful with the older and more educated Florida population, while radio announcements worked best with a lower income, less educated population in Maryland. (HispaniCare Project Staff in report to RWJF)

7. **Avoid working with clinicians who do not have regularly-scheduled hours allocated to research projects.** Although the RWJF grant funded physical therapists' time to work on the project at the MedStar Health Research Institute, the project "was routinely trumped by the need to see patients and the financial targets of the therapy department," said Project Director Susan E. Palsbo, Ph.D. The department requested that the project director pay the billable rate for therapists' time, not the salary cost. "The only way we were able to collect the data was by having a senior administrator step in to see patients," Palsbo said.

8. **Never assume that clinicians understand scientific methods or the reason for doing things exactly as stated in the research protocol.** MedStar Project Director Palsbo recommends that researchers "check in on clinicians after the first three or four patients, and go over with them, in detail, what they did."

9. **Set up a televideo training session when researchers are physically separated from each other.** Having "face time" in training helps those at different sites come together as a group. In the case of researching telemedicine applications (as with the MedStar project), it has the benefit of developing a familiarity with the strengths and constraints of conducting evaluations using videoconferencing equipment, according to Project Director Palsbo.

10. **Use the Internet to recruit participants for Internet-based studies.** For short and simple Internet studies, use links from other Internet sites along with an incentive to recruit participants. The Stanford method and design study found it "relatively easy" to recruit participants this way. Researchers offered a $10 Amazon.com gift card as an incentive. (Project Director Kate Lorig)

11. **When developing a project budget, keep in mind that computer programming is very expensive, both the initial work to start the project and the work needed to keep the project going.** Stanford Project Director Kate R. Lorig said, "Neither we nor the RWJF staff had a really good way of estimating these costs. The result is that we have a working program minus some of the features that we originally envisioned. My learning from this is to almost double any programming estimates that I am given."

12. **Ensure that laboratory quality control is checked when collecting metabolic data.** According to Stanford Project Director Lorig, "There is great variation between laboratories and one must have all data reviewed by qualified independent laboratory experts."

AFTERWARD

Health e-Technologies ended with the completion of the grants. However, expertise developed in the course of the initiative is in use in other efforts by the national program office and grantees.

National Program Office

Health e-Technologies national program office serves as the HIT (health information technology) Resource Center providing e-health technical assistance to RWJF's national program *Aligning Forces for Quality: Improving Health & Health Care in Communities Across America*. *Aligning Forces for Quality* (known as AF4Q) is RWJF's $300 million commitment to improve health care quality in 17 communities, reduce racial and ethnic disparities and provide models for national reform.

According to Ahern, "One of the goals of AF4Q is consumer engagement and we are working with communities using social media to engage consumers. The Foundation decided through AF4Q to do development grants to three organizations to do health information technology (HIT) projects and we will provide technical assistance to these in addition to the 17 main grantees."

In addition, according to RWJF Senior Program Officer Michael W. Painter, J.D., M.D., the HIT Resource Center is providing technical assistance to 11 AF4Q grantees as they develop proposals for federal grants from the National Coordinator for Health Information Technology under the HITECH section that is part of the federal 2009 American Recovery and Reinvestment Act (ARRA).

Grantees

The two for-profit companies featured in this report have continued to build upon work done and relationships developed under *Health e-Technologies*:

- At HealthMedia:
  - The project strengthened the relationship between the company and Kaiser Permanente. Kaiser now provides all of its members with access to HealthMedia's Web-based assessment and lifestyle management programs such as weight management, nutrition and smoking cessation.
  - The company more than doubled in size since the project ended, according to Project Director Kevin Wildenhaus. In October 2008, it was acquired by Johnson & Johnson, which, said Wildenhaus "sees the vision for new technology shaping wellness and prevention going forward."

    The research of Kate Lorig, Stanford project director, was used as a basis for its Care for Your Health chronic illness self-management program. The HealthMedia

team "became aware of Kate and her work at the grantee meetings," said Wildenhaus.

All this is a result of our involvement with *Health e-Technologies*," Wildenhaus said.

- At HispaniCare:
  - MiDieta is being used as the core, culturally appropriate healthy weight program in Florida's statewide Hispanic Obesity Prevention and Education (HOPE) program. Said Project Director Dirk Schroeder, "This project provided the evidence and launch for us to win and manage the HOPE program."
  - Staff is developing a peer education health management program, which will include MiDieta, for Hispanic employees of the 300-store HEB supermarket chain.
  - Early in 2010, the company received a contract from the government of the Dominican Republic to offer MiDieta to 2 million Dominicans as part of a health management program both in the Dominican Republic and in the northeastern United States.

"We have a real connection with national and international efforts as a result of this program, said Schroeder. "When people think about e-health this is what they are thinking about."

Prepared by: Mary B. Geisz
Reviewed by: Mary Nakashian and Molly McKaughan
Program officers: Robin E. Mockenhaupt, Stephen J. Downs and Michael W. Painter

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APPENDIX 1

National Advisory Committee

(Current as of the time of the grant; provided by the grantee organization; not verified by RWJF.)

Members with a * after their names retired after the first call for proposals solicitation process. Members with a ** after their names joined the NAC prior to the release of the second call for proposals.

Kevin M. Patrick, M.D., M.S. (Chair)
Professor of Family and Preventive Medicine
University of California, San Diego
San Diego, Calif.

Patricia F. Brennan, R.N, Ph.D., F.A.A.N., F.A.C.M.I. **
Moehlman Bascom Professor of Nursing and Engineering
University of Wisconsin-Madison
Madison, Wis.

Gary A. Christopherson **
Senior Advisor to the Under Secretary for Health
U.S. Department of Health and Human Services
Washington, D.C.

Thomas Eng, V.M.D., M.P.H.
President
Evalumetrix LLC and eHealth Institute
Belleview, Wash.

Ivan J. Juzang
President and Founder
Motivational Educational Entertainment Productions, Inc.
Philadelphia, Pa.

Gary Kreps, Ph.D.
Professor and Chair
Department of Communication
George Mason University
Fairfax, Va.

Matthew Kreuter, Ph.D., M.P.H.
Associate Professor and Director
Health Communication Research Laboratory
St. Louis University School of Public Health
St. Louis, Mo.

Jonathan A. Morell, Ph.D.
Senior Policy Analyst
New Vectors
Ann Arbor, Mich.

Rey Ramsey, J.D.*
Co-Founder, Chairman and Chief Executive Office
One-Economy Corporation
Washington, D.C.

Milagros C. Rosal, Ph.D.
Assistant Professor of Medicine
University of Massachusetts Medical School
Worcester, Mass.

Patricia R. Salber, M.D., M.B.A., F.A.C.E.P., F.A.C.P.
Medical Director
Center for Practical Health Reform
San Francisco, Calif.

Christobel E. Selecky
Chief Executive Officer
LifeMasters Supported SelfCare, Inc.
Irvine, Calif.

Anna-Lisa Silvestre, M.P.H.*
Vice President, Online Services
Internet Services Group
Kaiser Permanente
Oakland, Calif.

Jonathan S. Wald, M.D., M.P.H. **
Associate Director, Clinical Informatics Research and Development
Partners Healthcare
Wellesley, Mass.

Margaret A. Winker, M.D.*
Deputy Editor
Journal of the American Medical Association
Chicago, Ill.

APPENDIX 2

Funded Projects in *Health e-Technologies*

Methodology and Design Projects

Baylor College of Medicine (Houston, Texas)

Factors Influencing Log-On Rates in an e-Health Obesity Prevention Program Promoting Healthy Eating and Physical Activity to 8-10 Year Old African-American Girls

- ID# 049128 (September 2003 to February 2005): $98,564

  Project Director
  Deborah Thompson, Ph.D.
  (713) 798-7076
  dit@bcm.tmc.edu

Boston Medical Center Corporation (Boston, Mass.)

Development of a Longitudinal Qualitative Methods Manual and Qualitative Instrument for Evaluating Use of Multi-Contact e-Health Technologies by Patients and Consumers

- ID# 049137 (September 2003 to August 2004): $98,640

  Project Director
  Ramesh Farzanfar, Ph.D.
  (617) 638-7519
  rfarzanf@bu.edu

Carnegie Mellon University School of Computer Science (Pittsburgh, Pa.)

Creation and Evaluation of a Discourse Coding System to Assess the Benefits of Online Discussion on Mental and Physical Health

- ID# 049139 (September 2003 to February 2005): $77,605

  Project Director
  Susan R. Fussell, Ph.D.

(412) 268-4003
sfussell@andrew.cmu.edu

Johns Hopkins University Bloomberg School of Public Health (Baltimore, Md.)
Measuring Exposure to Online Health Information Among Adolescents

- ID# 049140 (September 2003 to February 2005): $96,347

Project Director
Dina L. G. Borzekowski, Ed.D.
(410) 502-8977
dborzeko@jhsph.edu

Kansas University Endowment Association (Kansas City, Kan.)
Development an e-Health Provider-Patient Communication Measure

- ID# 049141 (September 2003 to February 2005): $93,160

Project Director
Eve-Lynn Nelson, Ph.D.
(913) 588-2413
enelson2@kumc.edu

MedStar Research Institute Inc. (Hyattsville, Md.)
Effectiveness Measures of Telerehabilitation

- ID# 049143 (September 2003 to August 2004): $40,000

Project Director
Susan E. Palsbo, Ph.D.
(541) 505-7591
spalsbo@gmu.edu

Stanford University School of Medicine (Stanford, Calif.)
Reliability of Outcome Data Collected via Internet and Recruiting for Internet Studies From Rural America

- ID# 049142 (September 2003 to August 2004): $50,123

Project Director
Kate R. Lorig, R.N., Dr.P.H.
(650) 723-7935
lorig@stanford.edu

University of California, Los Angeles School, David Geffen School of Medicine (Los Angeles, Calif.)

Evaluating the Effectiveness of an e-Health Application to Improve Chronic Disease Management by Urban, Minority Children

- ID# 049145 (September 2003 to February 2005): $98,640

  Project Director

  Adrian M. Casillas, M.D.

  (310) 825-1153

  acasilla@mednet.ucla.edu

University of Texas Health Science Center at Houston (Houston, Texas)

Validation of Quality Criteria for Health Information on the World Wide Web

- ID# 049144 (September 2003 to August 2004): $98,357

  Project Director

  Elmer V. Bernstam, M.D.

  (713) 500-3927

  Elmer.V.Bernstam@uth.tmc.edu

University of Washington School of Public Health and Community Medicine (Seattle, Wash.)

An Evaluation Framework for e-Health Survey Applications

- ID# 049146 (September 2003 to February 2005): $98,589

  Project Director

  Bryant T. Karras, M.D.

  (206) 221-6676

  bkarras@u.washington.edu

Outcome Evaluation Projects

HealthMedia, Inc. (Ann Arbor, Mich.)

Efficacy of Web-Based Tailored Weight Management Program With and Without Tailored Nutrition and Goal Setting Support

- ID# 049147 (September 2003 to February 2007): $495,933

  Project Director

  Kevin J. Wildenhaus, Ph.D.

(734) 623-5453

kwildenhaus@healthmedia.com

The MEDSTAT Group, Inc. (Washington, D.C.)

Assessment of a Hand-Held and Internet Information Technology System to Improve Management of Cancer-Related Pain, Fatigue and Depression

- ID# 049149 (September 2003 to November 2007): $478,263

Project Director

Tami L. Mark, Ph.D.

(202) 719-7832

tami.mark@thomson.com

Pennsylvania State University College of Health and Human Development (University Park, Pa.)

Empowering Elders Through Technology

- ID# 049150 (September 2003 to August 2006): $429,421

Project Director

Kathryn H. Dansky, Ph.D.

(814) 863-2902

kxd9@psu.edu

Stanford University School of Medicine (Stanford, Calif.)

Internet Diabetes Self-Management: A Randomized Trial

- ID# 049148 (September 2003 to February 2007): $496,223

Designing a Guide to Recruit and Retain Native Americans for Internet-Based Diabetes Self-Management Programs

- ID# 063156 (September 2007 to August 2008): $80,000

Project Director

Kate R. Lorig, R.N., Dr.P.H.

(650) 723-7935

lorig@stanford.edu

University of California, San Francisco, School of Nursing (San Francisco, Calif.)

Comparing the Effects of an Internet-Based to an Established Dyspnea Self-Management Program on Dyspnea, Exercise Behavior and Pulmonary Exacerbations in Patients With Chronic Pulmonary Disease (COPD)

- ID# 049153 (September 2003 to August 2008): $488,997

  Project Director
  Virginia L. Carrieri-Kohlman, R.N., D.N.Sc.
  (415) 476-4131
  ginger.carrieri-kohlman@nursing.ucsf.edu

University of Massachusetts Medical School (Worcester, Mass.)

Using of Tailored E-Mails to Motivate Healthy Behavior, Improve Health Status, and Reduce Health Care Costs in Employee Populations: A Randomized Trial

- ID# 049924 (December 2003 to August 2005): $471,657

  Project Director
  Patricia D. Franklin, M.D., M.B.A., M.P.H.
  (508) 856-5748
  Patricia.Franklin@umassmed.edu

Project began at:

Research Foundation of State University of New York (Albany, N.Y.)

- ID# 049151 (September 2003 to August 2005): $21,530

The University of North Carolina at Chapel Hill School of Medicine (Chapel Hill, N.C.)

Health eCommunities: The Impact of Listservs on Cancer Patients

- ID# 049152 (September 2003 to February 2007): $494,965

Improving Cancer Care by Promoting Virtual Patient Communities

- ID# 055815 (December 2005 to December 2006): $99,496

  Project Director
  Barbara K. Rimer, Dr.P.H.
  (919) 966-3036
  brimer@email.unc.edu

University of Washington School of Medicine (Seattle, Wash.)

A Randomized Controlled Trial of Diabetes Disease Management Over the Internet

- ID# 049154 (September 2003 to February 2008): $492,565

Project Director

Daniel Lessler, M.D., M.H.A.

(206) 731-8668

dlessler@u.washington.edu

Web Portal Projects

Aurora Health Care, Inc. (Milwaukee, Wis.)

Weight Management for a Defined Employee Population Using an Interactive eHealth Portal

- ID# 051756 (September 2004 to November 2007): $349,768

Project Director

Paul P. Hartlaub, M.D., M.S.P.H./Alison E. Lux, M.D.

(262) 646-7335

aelux@hotmail.com

Beth Israel Deaconess Medical Center, Inc. (Boston, Mass.)

Improving Chronic Disease Care With PatientSite

- ID# 051757 (September 2004 to December 2007): $399,980

Project Director

Lisa I. Iezzoni, M.D., M.Sc.

(617) 643-0657

liezzoni@partners.org

Cleveland Clinic Foundation (Cleveland, Ohio)

The Potential of Technology to Improve Chronic Disease Management and Quality of Care

- ID# 051760 (September 2004 to February 2008): $325,920

Project Director

C. Martin Harris, M.D.

(216) 444-4246

harrisc@ccf.org

Geisinger Clinic (Danville, Pa.)

Does Access to an EHR Patient Portal Influence Chronic Disease Outcomes? A Randomized Trial Assessing Clinical and Behavioral Change Outcomes in Patients With CHF, Diabetes, or Secondary CVD

- ID# 051761 (September 2004 to February 2007): $399,026

  Project Director
  Walter F. Stewart, Ph.D., M.P.H./Nirav R. Shah, M.D., M.P.H.
  (917) 605-6992
  niravrshah@gmail.com

HispaniCare™, a Division of DrTango, Inc. (Roswell, Ga.)

Evaluation of the MiDieta™ (MyDiet) eHealth Portal to Facilitate Improved Diets, Increased Fitness Levels and Weight Loss Among Hispanics

- ID# 051759 (October 2004 to September 2008): $399,999

  Project Director
  Dirk G. Schroeder, Sc.D., M.P.H.
  (678) 749-6772
  dschroeder@drtango.com

University of Colorado at Denver and Health Sciences Center (Denver, Colo.)

D-STAR (Diabetes-System to Access Records): An Online Patient Portal to Improve and Sustain Diabetes Self-Care

- ID# 051758 (September 2004 to March 2007): $397,099

  Project Director
  Stephen E. Ross, M.D.
  (303) 724-2267
  Steve.Ross@ucdenver.edu

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- This article was part of a special section titled *Mastering the Methodological Challenges for Evaluating eHealth Research* that was guest edited by David K. Ahern and featured original articles authored by seven grantees. Links to abstracts or full texts of grantee are available on the Grantee Research page of *Health e-Technologies* website.

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