

## CREATING CHANGE BY Strengthening Infrastructure

The effectiveness of the health system in meeting its fundamental goal of enhancing individual and population health depends upon having a strong infrastructure. Efforts to transform the medical care and public health system cannot succeed if information systems are antiquated, the workforce does not have the capabilities or competencies to deliver appropriate services, and the organizational capacity is insufficient to the task. Strengthening the system's core infrastructure is critical to enhancing the transfer of knowledge among providers, agencies, and community partners; responding effectively to identified and emerging health needs; and functioning efficiently.

### IMPROVING INFORMATION AND DATA COLLECTION SYSTEMS

Information and data systems are important tools for monitoring community health and enhancing the delivery of services. Technology can also facilitate communication among health care professionals and institutions, providers and patients, communities and policymakers. For example, computerized medical records and scheduling and billing software can help hospitals and clinics function in a more timely and efficient manner. Pharmacy bar coding systems and computerized physician order entry systems can reduce medical errors and improve patient safety. State and local health departments need sophisticated tools for surveillance, rapid dissemination of health alerts, and analysis of patterns in morbidity and mortality.

Foundations are supporting the information and data systems needed to build a more effective health system. Building the technology capacity of community clinics and health centers throughout California is the goal of *The Community Clinics Initiative*, a joint project of the Tides Foundation and The California Endowment. Launched in 1999, the initiative is working to strengthen internal information systems by funding hardware, software, connectivity, and technology staffing. It also provides clinics and health centers with opportunities to find innovative solutions to challenges such as sharing medical information from site to site, improving the quality of software products available and appropriate for the field, and helping to develop statewide linkages for assessing health outcomes and health disparities. As a result of the program, almost 200 organizations have enhanced their capacity to use technology to make their economic operations more efficient and clinical operations more effective. Others are doing this work on a smaller scale. For example, the Quantum Foundation, Inc. and

the Community Health Foundation of Western and Central New York have both funded community clinics to purchase health management information and electronic medical record systems that will make it easier to efficiently collect and share patient information and enhance the coordination of care and provision of services.

Information technology is also critical for public health agencies. The Kansas Health Foundation supported the development and installation of the Kansas Integrated Public Health System, a comprehensive system that assists state and local health departments in obtaining accurate data on health issues and integrating data from multiple sources. The system is connected to the Centers for Disease Control and Prevention's national surveillance system.

Technology can also be used to improve provider and patient communication and interaction. The *Health e-Technologies Initiative*, a \$10.3 million national program of The Robert Wood Johnson Foundation, is funding research to advance knowledge of interactive applications for chronic disease management, such as the Internet, voice response systems, and personal digital assistants. The program's overarching goal is to find out if these technologies improve processes and outcomes of care and support provider adherence to evidence-based care. One grantee, the University of Colorado Health Sciences Center, is testing the use of D-STAR (Diabetes-System To Access Records), an on-line patient portal to improve and sustain diabetes self-care. Another is assessing patient and caregiver participation on a cancer-related listserv managed by the Association of Cancer Online Resources. Researchers at the University of North Carolina's Lineberger Comprehensive Cancer Center are evaluating the impact of the listserv on a range of participant outcomes and will disseminate findings to key audiences.

### ENHANCING WORKFORCE CAPACITY

Workforce capacity and competency is another element of infrastructure. Transforming the nation's health system will require a workforce that can deliver care that is safe, efficient, evidence-based, and patient-centered.

Several changes are needed to strengthen workforce capacity. These include training health professionals to be responsive to the changing demographics of communities, breaking down barriers to effective communication and cooperation among various health professionals, and ensuring an adequate supply of workers. The Blue Cross and Blue Shield of Minnesota

Foundation has provided major support to the Health Education Industry Partnership, a project of Minnesota State Colleges and Universities, to develop an accredited community health worker (CHW) training program, including standardized curriculum, student recruitment, and links with the employment market. Promoting the use of CHWs who can help diverse populations overcome barriers that prevent them from accessing health services, is a strategy for improving cultural competence, reducing health disparities, and reducing the state's health work force shortage.

Other funders are working to support an interdisciplinary team approach to caring for patients. Elderly patients, for example, often have complex, chronic conditions requiring a team of health professionals to provide a wide range of medical as well as psychosocial support services. The John A. Hartford Foundation, Inc.'s *Geriatric Interdisciplinary Team Training* initiative has created training models for health professionals in the skills and resources needed for effective team care of older patients. The program initially involved advanced practice nurses, master's level social workers, and medical residents. Faculty and student trainees in 13 additional disciplines, such as physical therapy, dentistry, and pharmacy, were later added. Another team-based program supported by the foundation is the *Generalist Physician Initiative*, which is working to improve the treatment of elderly patients by integrating nurses, social workers, and other health care professionals into primary care medical practices.

Foundations are also helping to address the nursing shortage, a threat to the delivery of high-quality patient care. Some are focused on recruitment. The Helene Fuld Health Trust, for example, gave more than \$2 million in 2001 to support 22 nursing programs for financial aid to economically disadvantaged students pursuing higher degrees in nursing. Others, such as the Gordon and Betty Moore Foundation, are focused on enhancing the role of nurses by improving the effectiveness of their clinical skills through training as well as development and implementation of evidence-based practices.

### BUILDING ORGANIZATIONAL CAPACITY

Organizational capacity includes the physical facilities – clinics, laboratories, and up-to-date equipment, for example – needed to provide services. Support for organizational capacity is especially critical for safety net providers and others who treat vulnerable populations or function in medically underserved areas. Foundations are supporting organizational capacity in a number of ways, including support for bricks and mortar and up-to-date equipment. Recognizing the need for dental services in its state, the Missouri Foundation for Health, for example, provided start-up funding for a dental clinic at the Southern Missouri Community Health Center in 2004. The grant supported the purchase of equipment for six dental operatories, supplies for the dental clinic, and the salary for one dentist. In 2003, the foundation funded the People's Health Center, Inc. to enhance primary care services through increased availability of x-ray and ultrasound services for low-income residents. By

upgrading its aging radiology equipment, the center is able to improve basic x-ray services for patients with respiratory and other chronic diseases, as well as provide enhanced prenatal care with new ultrasound equipment.

Foundations can help safeguard the health of their communities by supporting emergency preparedness activities. Up-to-date equipment and laboratories enable public health practitioners to monitor and detect disease, as well as respond to emergencies. The Palm Healthcare Foundation in Palm Beach, Florida provided funding for a bioterrorism preparedness project that has enhanced the capacity of 14 local hospitals to handle possible bioterrorism attacks by standardizing communication, response, and other systems. It also included funding for equipment, such as portable decontamination units and hazmat suits, and for training emergency room workers. The foundation's efforts have allowed Palm Beach area hospitals to work together to quickly design and implement an emergency response system.

### MULTIFACETED APPROACHES FOR BUILDING INFRASTRUCTURE

Some funders are taking multifaceted approaches to building health system infrastructure. The Robert Wood Johnson Foundation's *Pursuing Perfection* initiative, for example, is supporting the transformation of patient care processes that involve shoring up organizational capacity, health professions training, and information technology. *Pursuing Perfection*, a three-year, \$20.9 million program, selected 12 health care organizations to develop comprehensive plans for systematically improving health care quality. Seven of these received additional two-year grants of \$1.9 million each to help put their plans into practice. One grantee, the Cambridge Health Alliance in Massachusetts, is implementing improved care systems for five priority diseases. In its asthma care initiative, for example, providers are using a computerized asthma registry to get a comprehensive picture of the health of pediatric patients. No matter where a patient enters the health care system – primary care appointment, school nurse's office, emergency department, or even another Boston-area hospital – providers will be able to access the health history, current medications, and other vital information. Partners in this effort include local agencies, schools, pharmacies, other health care institutions, and parents. A second *Pursuing Perfection* grantee, Tallahassee Memorial HealthCare in Florida, a nonprofit, integrated health care system, is conducting two pilot projects in collaboration with Capital Health Plan, a local HMO. The first pilot project completely redesigns the medication system, focusing on all phases of medication management, including computerized physician order entry, automated dispensing, an online medication administration record, barcoding, and a medication error and near-miss reporting system. The second pilot project is aimed at redesigning cardiovascular services to reduce mortality and costs of care.

*This article is part of GIH's portfolio, Agents of Change: Health Philanthropy's Role in Transforming Systems. Each article focuses on an approach grantmakers are using to promote systemic or social change. The entire portfolio is available on GIH's Web site [www.gih.org](http://www.gih.org).*