



The Computerworld Honors Program

Honoring those who use Information Technology to benefit society

Final Copy of Case Study

YEAR:
2012

STATUS:
Laureate

Organization:
Wireless Reach for Qualcomm

Organization URL:
www.qualcomm.com/wireless

Project Name:
Wireless Heart Health: Using 3G to Assist Underserved Patients with Cardiovascular Disease

What social/humanitarian issue was the project designed to address? What specific metrics did you use to measure the project's success?

According to the World Health Organization, chronic diseases like cardiovascular disease (CVD) have placed a grave economic burden on countries across the globe. CVDs are currently the leading cause of death in China (and worldwide), responsible for about 3 million deaths annually (by 2020, that figure is expected to increase to four million)(1). These numbers increase in rural areas where there is a scarcity in access to care. Within health care, mobile technologies can improve access to health services, enhance self-care, address rising costs, increase productivity and respond to the increasing demands of chronic disease. Wireless technology can also empower the aging to be better able to lead healthy, independent lives. Since the launch of the project in September 2011, 1,033 patients in four community health clinics have benefitted from Wireless Heart Health. These patients have sent 2,172 pieces of ECG data over the 3G network to cardiac specialists, who have identified 513 pieces of abnormal ECG data. Out of all of the patient participants, 208 were screened for serious cardiovascular conditions and referred to higher level clinics for further evaluation and testing. (1) China CVD Report 2010, published by China National Center for Cardiovascular Diseases under the administration of the Ministry of Health. (http://news.xinhuanet.com/society/2011-08/12/c_121852777.htm)

Please describe the technologies used and how those technologies were deployed in an innovative way. Also, please include any technical or other challenges that were overcome for the successful implementation of the project.

The Wireless Heart Health 3G system includes smartphones with built-in electrocardiogram (ECG) screening and monitoring; web-based, electronic medical record software; and 3G wireless workstations located within the clinics. Each workstation includes a computer terminal with Internet access, providing health care workers with instant access to electronic patient records, including ECG data. The project also includes training sessions for all participating community health center clinicians. In this project, smartphones automatically send patient data, over China Telecom's 3G network, for fast analysis to a cardiac specialist in the Beijing Life Care Networks Call Center. The patient holds the phone (on the designated sensors) for approximately 30 seconds in order for their heart data to be collected. Doctors are able to respond within three minutes of receiving patient data, providing rapid feedback to patients and clinic staff via SMS or phone call. The call center is staffed by 40 physicians and provides round-the-clock services, including remote monitoring, diagnosis, clinician consultation and treatment. For patients with simple cases, physicians in the call center can provide services remotely, while patients with more complex cases are referred to specialty hospitals for further testing or to receive treatment. Patients also have the opportunity to rent the cardiovascular-sensing smartphones to take home for monitoring their heart data whenever and wherever symptoms arise.

Please list the specific humanitarian benefits the project has yielded so far.

As the people of China begin demanding health-related services, they are also becoming more aware of the benefits of managing their own health and preventive care. (Note: In China, medical services are almost all done in hospitals. Appointments cannot be made ahead of time and patients must register in-person and wait until a doctor can see them.) The ECG device was designed to lessen the burden on hospitals, while also providing a service to those who cannot afford hospital visits or easily travel to one. 3G solutions can be effective in overcoming obstacles like delivering quality health care to remote areas. Wireless connectivity can bring skilled medical experts instantly to patients in need. Small clinics can connect to main hospitals, ensuring health care workers have the latest information and access to specialists.

Please provide the best example of how the project has benefited a specific individual, enterprise or organization. Feel free to include personal quotes from individuals who have directly benefited from the work.

Wireless Reach believes that the mobility and access to information offered through 3G technologies can help lower costs, facilitate remote care, increase efficiencies and connect people to their health care providers. It was with these benefits in mind that the Wireless Heart Health project was put into motion. To illustrate how the system has improved patient care: Ms. Haitao LI, Director of Jinan Minzu Community Health Clinic, was very pleased to be a participant in Wireless Heart Health. When asked about her experience in the project, she responded: "This equipment is very suitable for this community hospital. In the community, we carry out comprehensive medical tasks. We focus mainly on early prevention, basic treatment and rehabilitation. However, when it comes to utilizing equipment for the early prevention of coronary diseases, we have zero experience. This equipment provides great help in early screening and prevention of coronary diseases." Ms. Yang Yongwei, a patient participant in the Wireless Heart Health project, provided the following testimonial: "My illness is monitored around the clock. I can run a test whenever there is discomfort, and I know the conditions of my body and heart immediately."

