

Connecting Health Clinics and Remote Health Workers (Uganda)

Issue: Relaying Medical Care Information in Rural Areas

In developing countries, health care is often delivered by a lone nurse practitioner in a one-room clinic. As they battle AIDS, tuberculosis, malnutrition, malaria, and other diseases, the practitioners frequently lack access to electricity or running water, let alone medical information, a telephone, or the Internet.

Often the quality of care a patient receives is limited to whatever knowledge the nurse retained from basic training. In Uganda, per capita spending on health is US \$57 per year. In Rakai, a rural district about 200 miles southwest of the capital city of Kampala, there is one doctor for every 22,400 people; in the Mbale district, a rural agricultural district where coffee and bananas are grown, there is one doctor for every 15,000 people. With medical staff stretched so thin and working under challenging circumstances, access to wireless-enabled health care information becomes a critical lifeline just when it is needed—at the point of care.

Response: Using Wireless Personal Digital Assistants to Bridge the Gap

To address this urgent need for point-of-care medical information, Academy for Educational Development (AED)-Satellife, a U.S.-based nonprofit organization, has implemented projects in more than a dozen countries where health professionals working in resource-poor areas use handheld personal digital assistants (PDAs) to transmit and receive vital data via a wireless or mobile network.

How It Works

AED-Satellife has used handheld computers for the last six years to deliver medical information at the point of care. It delivers medical information including disease treatment guidelines, continuing education materials, newsletters, and essential drug lists and databases. Nurses also receive national and international news articles on their devices.

AED-Satellife also has customized software for data collection on handhelds so medical workers are able to track patients and keep records electronically. Clinics are required to regularly send data on public health programs and routine epidemiological data back to the regional health centers.

Personal Digital Assistants

A PDA, or personal digital assistant, is a small, handheld computer that makes it possible to store, access, and organize large volumes of information. Personal digital assistants can exchange data electronically with other devices. They are sometimes also referred to as ‘smart phones’ when telephone capabilities are included.

Holly Ladd, Director of AED-Satellife, describes how handheld devices deliver vital information: “We have seen changes in practice, particularly around treatment for diarrhea. We emphasize in the medical treatment alerts that we send to the handheld devices in the clinics that re-hydration therapy is strongly recommended as a first course of action, particularly with kids. We have evidence that this is now used much more often as a first course of action in those clinics.”



Credit: AED-Satellife

Likewise, PDAs can streamline health data collection from remote areas. Ladd describes a recent typhoid outbreak that was detected early because clinics regularly reported cases with PDAs. “The outbreak was contained because we could see that something was amiss. This would not have been possible with paper and pencil reporting, which is much more time-consuming,” she says.

AED-Satellife has pioneered the use of handheld devices that can perform the same tasks as a desktop or laptop computer in health-care settings in developing countries. The Uganda Health Information Network is an AED-Satellife Project operated in collaboration with Uganda Chartered HealthNet and the Faculty of Medicine of Makerere University. It is the largest of AED-Satellife’s current projects using PDAs in health clinics.

Outcome: More Effective Data Collection, Better Health Care Services

Four years into the project in Uganda, 175 remote health facilities serving more than 1.5 million people are able to send and receive data and medical updates. AED-Satellife is replicating the project in Mozambique, having translated the software and materials into Portuguese, where 110 health centers are receiving medical updates and are collecting health information. It also launched in South Africa in spring 2008.

An evaluation of AED-Satellife’s project in Uganda determined that handheld

computers result in “more rapid, accurate, and cost-effective data collection and reporting.”¹¹ It found that a handheld computer network spanning two districts in Uganda indicated a 24 percent savings over traditional paper-and-pencil methods, and that further savings are expected as additional surveys are converted to the handheld format.

AED-Satellife has carefully documented its lessons learned from years of using PDAs in delivering and collecting health information in developing countries. The organization has produced a ‘PDA Toolkit’ complete with a step-by-step guide on how to deploy PDAs, including information on the opportunities available and how to assess an organization’s readiness for using handhelds.

Ladd notes that AED-Satellife now knows “what users like and do not like, what incentives they need to use the PDAs, where we need to cheerlead, support, and evangelize. It turns out that delivering news and popular content—including gossip columns—onto the nurses PDAs is a great way to get users used to using them.”

Next Steps: Coordinating with Key Partners to Bring Programs to Scale

In order to expand projects like AED-Satellife, the Uganda Health Information Network needs institutional support from the national healthcare system. In Uganda, the AED-Satellife project was initiated by two non-governmental organizations (NGOs) in conjunction with the Faculty of Medicine of Makerere University.

Although the District Health Services—Uganda’s regional health system—was actively supportive, the Ugandan Ministry of Health initially wanted to wait until the viability of the solution was proven before

¹¹AED Satellife internal evaluation

CASE STUDY 2 CONTINUED

making a decision about whether to become a direct implementing partner. AED-Satellite continuously updated the Health Ministry on the project, and in 2007 the Ministry indicated its intent to roll out the network to additional 20 districts.

Ladd says: “We have proof of concept now, and are working with the Health Ministry to scale the network from 174 health centers operating at the district level to an additional 20 health districts with approximately 3,000 additional health centers.”

In Mozambique, AED-Satellite took a slightly different approach. That project, which began with the launch of PDA programs in 110 health centers, was initiated by the Maputo Ministry of Health and supported at that level. Engaging the Ministry of Health from the very beginning proved to be instrumental in ensuring project sustainability, and facilitating rapid skills transference to Ministry technical personnel.

As the program is brought to scale, the wireless connections established through the AED-Satellite programs are increasing health officers’ knowledge of health care needs—even in the most remote areas—while sharing critical medical and health updates

with health workers. Particularly for remote, under-resourced areas, access to wireless-enabled health care information can serve as a critical lifeline for informed health care. ■

Developing Open Source Standards

There are now several consortia that aim to collaboratively standardize software for medical records collection. The Open Medical Records System (OpenMRS) is a free and open source electronic medical record application for developing countries (www.openmrs.org). The application has been used to manage patient and treatment information associated with HIV/AIDS and tuberculosis care in several countries in sub-Saharan Africa. Open Rosa, another consortium just now forming, aims to develop a mobile medical record system. Both consortia have received funding and are aimed at reducing redundancy amongst NGOs developing medical record systems, and standardizing the way medical data is collected and managed, both on computers and on handheld and mobile devices.



Credit: AED-Satellite