In Brief

This report is part of an occasional series that distills learning and highlights resources around specific development issues.

AGA KHAN FOUNDATION CANADA

An Agency of the Aga Khan Development Network

Nurturing Maternal and Child Health:

eHealth: Finding the Right Solutions for Local Needs

The **AKFC Seminars on Nurturing Maternal and Child Health** were hosted in partnership with the **Canadian Network for Maternal, Newborn and Child Health (CAN-MNCH)** from September 2013 to January 2014. Five seminars explored approaches and strategies designed to strengthen health care in developing countries, with a particular focus on maternal and child health.

This report builds on the discussions generated in the seminar, **Virtual Health, Healthy Reality: Exploring eHealth** (January 23, 2014), featuring a conversation with **Dr. Kendall Ho**, Director, eHealth Strategy Office, University of British Columbia; **Mr. Saleem Sayani,** Director, eHealth Resource Centre, Aga Khan Development Network and **Ms. Chaitali Sinha,** Senior Program Officer, International Development Research Centre, moderated by **Dr. Dorothy Shaw,** Chair, Canadian Network for Maternal and Child Health.

A growing number of practitioners are exploring eHealth – leveraging advances in communications technology to strengthen health systems across the globe. Aiming to promote improved health service provision, especially in difficult-to-access rural and remote communities, these innovations have resulted in a suite of programs from health messages delivered to mobile phones to video conferencing between doctors on different continents. What has been the experience to-date?

Photo caption: In Tanzania, expectant mothers and their families can subscribe to a text messaging service that brings tailored information on healthy pregnancy and early childhood care. Participants receive three to four messages per week covering nutrition, family planning, HIV/AIDs and malaria prevention, postpartum care and warning signs to watch for during pregnancy. They also get friendly reminders of upcoming appointments.

Reaching Those with Limited Access to Health Care

In two remote districts in Mali, an Aga Khan Development Network (AKDN) program has equipped groups of pregnant women and mothers of small children with cellphones that connect them to essential medical services. Through SMS text messaging, distant health workers can both monitor their patients' health and send vital information and instructions, while at the same time collecting data that gives them a clearer picture of the broader health needs of those communities.

In Afghanistan, meanwhile, tele-consultations between staff at several remote community health centres and specialists at the Faizabad Provincial Hospital have allowed high-risk patients to receive treatment in their own communities, avoiding the days-long journey that would otherwise be necessary. Since travel is extremely difficult in those isolated, mountainous regions of Afghanistan, "tele-consultation is often the difference between life and death," says Saleem Sayani, director of the AKDN's eHealth Resource Centre.

Used both for patient referrals and to upgrade rural health workers' knowledge and skills, the Afghan tele-communications link is just one part of the AKDN's emerging eHealth system that will span South and Central Asia. When it's completed in 2017, the network will connect a "superhub" – the Aga Khan University Hospital in Karachi, Pakistan – with two tiers of health facilities in Afghanistan, Tajikistan and Pakistan. This network will give patients in underserved communities across the region access to more healthcare services and allow for routine upgrading of on-the-ground health workers' knowledge and skills.

The Promise of More Efficient Health Systems

Those examples provide only a partial demonstration of the potential of new "eHealth" systems – computer-based communications and analytical technologies – to increase the reach and efficiency of national health systems and, in turn, to improve the health of many in the developing world.

But how can that promise best be realized? Some specialists warn against viewing eHealth technology as a silver bullet. While the potential is high, new technologies could also hinder the provision of healthcare in places where resources are scarce, the health infrastructure is overtaxed and health workers are reluctant or unable to change their routines. All these potential limitations should be taken into account. Imposing technological "solutions" in inappropriate ways could do more harm than good.

Making eHealth systems work – unleashing their potential in ways that complement existing health systems while minimizing the risks – requires sensitivity to context and local conditions. What does this look like in practice? Initiatives across the developing world provide critical insights into how eHealth can increase access to quality health care, within existing systems.

A Technological Revolution in Global Health

At a global level, there's little doubt that new eHealth technologies have the power to revolutionize the way that health services are provided. In the developed world, adds Dr. Kendall Ho, Director of the eHealth Strategy Office at the University of British Columbia, that revolution is well underway.

Patients' use of social networking sites to record and share information – along with apps that allow individuals to monitor sleep patterns, calorie intake, heart rate or indicators of anxiety –have led to a level of patient participation in health management that doctors are scrambling to keep up with. Meanwhile, new and inexpensive technologies for genetic testing now allow for disease surveillance that's both more precise and more far-reaching than previously possible.

Dr. Ho believes that many new eHealth innovations also have potential applications in less developed countries. A so-called "optometrist in a box" – a monitor that snaps onto a camera phone to look deep into the eye and transmit those images – "could help people in underserved communities to gain sight," he says. Similarly, remote monitoring now makes it possible for a medical team a long distance away to track a newborn baby's vital signs – effectively bringing the expertise of a paediatric ICU to a remote community.

The Need to Acknowledge Local Contexts and Existing Systems

At the same time, some experts caution that while eHealth technologies can improve health equity and well-being, many eHealth technologies have the potential to detract from, rather than support, the fundamental work of extending primary health care coverage to mothers, young children and other vulnerable groups who are disproportionately at risk from preventable diseases. Rather than focusing on "staying ahead of the bleeding edge," says Chaitali Sinha, senior program officer with Canada's International Development Research Centre (IDRC), the challenge for developing countries is to adopt new technologies in a way that adds value to existing efforts.

> "It's not about adopting the best solution and the most elegant solution," she elaborates. "It's about adopting the best and most elegant solution for what you are doing and where you are."

Some fundamental questions to ask before eHealth systems are put in place is whether the technology is affordable; whether staff can make those new systems work while keeping pace with other responsibilities; and whether staff can make the cultural shift necessary to enable new ways of organizing their work. Those questions become especially important when international consultants have packed up and national health systems are left with full responsibility for keeping the eHealth apparatus up and running.

"One has to take into account who is going to pay for these services when you leave. Who is going to have the time to fill in the forms, to go to the phones, to integrate these things into their daily routines?" says Sinha. Perhaps more important, is there sufficient buy-in from workers on the ground so that change can happen over the longer term? These questions need to be asked at the design stage of an eHealth project, not at the end..

Multiple Benefits for Patients and for Health Systems

None of this is to deny the tremendous potential of eHealth to improve patients' lives. Sinha/IDRC maintains that if eHealth systems are effectively integrated into health systems –serving their essential goals and interwoven into daily operations – they offer a multitude of benefits.

New technologies can both enable the provision of services to people who live far from health centres and extend "continuity of care" by making it easier for people to follow up after the initial diagnosis and treatment. Travelling from a remote area to a city for care is not only a burden on people's time. The cost of traveling and living away from home often puts needed health care out of reach for the poor. Women in countries where females are prohibited from travelling outside the home unescorted face an additional barrier that eHealth can alleviate. IDRC/Sinha believes that integrating eHealth into a health system should be done with a sound understanding of how the existing system acts and reacts. With this understanding, eHealth can chip away at many of these barriers to affordable, quality care.

Additionally, eHealth holds tremendous potential to improve collection of essential health data by streamlining the processes through which health workers collect information and submit reports. The ability of eHealth systems to "standardize data management—how data is captured, coded and shared," as Sinha observes, can also combat health system fragmentation and make it easier for health information to be shared across jurisdictions.

On the other hand, imposing eHealth without adequate consideration of the local context can bring very different results. A worst case scenario is the creation of a parallel system that drains resources away from essential activities and—rather than fixing fragmentation—increases it.

New Models of Health Delivery on the Ground

AVOIDING THOSE OUTCOMES, BY MAKING HEALTH MINISTRY AND DISTRICT HEALTH STAFF CENTRAL TO THE PLANNING AND CONSTRUCTION OF EHEALTH SYSTEMS, IS A KEY PRIORITY FOR SEVERAL IDRC-FUNDED EHEALTH INITIATIVES CURRENTLY UNDERWAY:

The Open Architectures Standards and Information System (OASIS) project in Mozambique, South Africa, Rwanda and Zimbabwe is constructing health data systems to enable health planners to set priorities for health spending (based on evidence on the burden of disease), and to assess the effectiveness of their programs in lowering morbidity and mortality. In Mozambique, OASIS has created the country's first ever system for collecting mortality information, which is owned and led by the Ministry of Health, with support from NGOs and researchers. "Inter-operability" of software allows data to be shared across the region, and the data-gathering technology is simple enough to allow health workers to feed in information from communities.

The Nigeria Evidence-based Health System Initiative (NEHSI) is working at multiple levels of the health system to strengthen "a culture of evidence" necessary for more effective health planning. From extension workers in the field, to state-level planners, to families who use health services, understanding the need to record health information so that it can be analyzed and used by decision-makers is a key to success.

Strengthening Equity through Applied Research Capacity-building in eHealth (SEARCH) is a new seven-country initiative aimed at examining how integrating eHealth into health systems can improve delivery of care – predominantly in the area of maternal, newborn and child health.

The AKDN's e-health initiatives, meanwhile, have begun to improve healthcare for individual patients in remote communities. Sayani reports that the AKDN's eHealth network in South and Central Asia has enabled over 11,000 tele-consultations – often the difference between "life and death" in this part of the world – over five years of operation. In East Africa, a new eHealth system focused entirely on MNCH facilitated 87 tele-consultations in its first year. The cross-border nature of these networks has required ironing out complications arising from language differences and conflicting licensing requirements.

Harnessing the Potential, Mitigating the Risks

With eHealth set to expand exponentially, the potential of making quality health care more accessible to underserved populations – in particular to mothers and children – is high. But with that potential come significant risks, including overburdening already stretched human resources to deliver care and manage health systems; interventions that do not reflect local contexts, needs and behaviours; and technologies that cannot be sustained and updated locally once external support ends.

Examining the practice-based experience of a range of actors yields several critical insights:

• Identify the particular challenges that would benefit from eHealth solutions

• Understand the existing systems, local contexts and practices

• Integrate local health actors at all levels into the planning and design process from the outset

• Ensure that health care providers have the training, resources and appropriate processes in place to adopt new technologies in ways that improve their work – rather than add an extra burden

Like many other development agencies, the AKDN has embraced eHealth as key component of its efforts to improve outcomes in the area of Maternal, Newborn and Child Health (MNCH). Far too many mothers and children under-five lose their lives or suffer chronic disabilities as the result of conditions that are easily prevented, contained or cured.   The promise of eHealth is that – if sensitively and carefully planned in partnership with local institutions and health providers – it will enhance the capacity of over-burdened health systems to reach the most at-risk mothers and children with life-saving interventions.

Further Resources

To watch a recorded webcast of the Virtual Health, Healthy Reality: Exploring eHealth (January 23, 2014) seminar, please click here.

Nurturing Maternal and Child Health series overview

MNCH Photo Gallery

Daring to Deliver

Aga Khan Foundation Canada

Aga Khan Foundation Canada (AKFC) is a non-profit international development agency, working in Asia and Africa to find sustainable solutions to the complex problems causing global poverty. Established in 1980, AKFC is a registered Canadian charity and an agency of the worldwide Aga Khan Development Network.

Aga Khan Foundation Canada | The Delegation of the Ismaili Imamat, 199 Sussex Drive, Ottawa, Canada, K1N 1K6 | **akfc.ca**

Undertaken with the financial support of:

Foreign Affairs, Trade and
Development Canada

Affaires étrangères, Commerce
et Développement Canada

Canada