

SECTOR FOCUS 3

e-health

Providing rural health care is a major challenge in countries with large rural populations. For example, in Ethiopia, more than 80 percent of the population lives outside of urban areas and more than 30 percent of the rural population is poor. Since 2003, the Ethiopian government has trained and deployed over 40,000 Health Extension Workers (HEWs) to serve rural and other hard-to-reach populations. However, HEWs are often isolated and lack the capacity to prioritize urgent but unpredictable antenatal and post-natal care.

To improve information flows, the World Bank, the African Development Bank, and Addis Ababa University developed the FrontlineSMS platform.¹ HEWs can register pregnant women and newborns and receive automated short message service (SMS) reminders to notify them of key appointments and to track the stock of essential medicines. An evaluation showed that by using existing mobile networks and low-cost feature phones, the system improved the ability of health workers to deliver services and improve health outcomes. More women had skilled assistance with their delivery, more women delivered in health centers, and more women received antenatal care. The system improved HEWs' capacity to respond in a timely manner and shows that in a context where internet coverage is low, mobile phones can be an effective way to improve health system performance.²

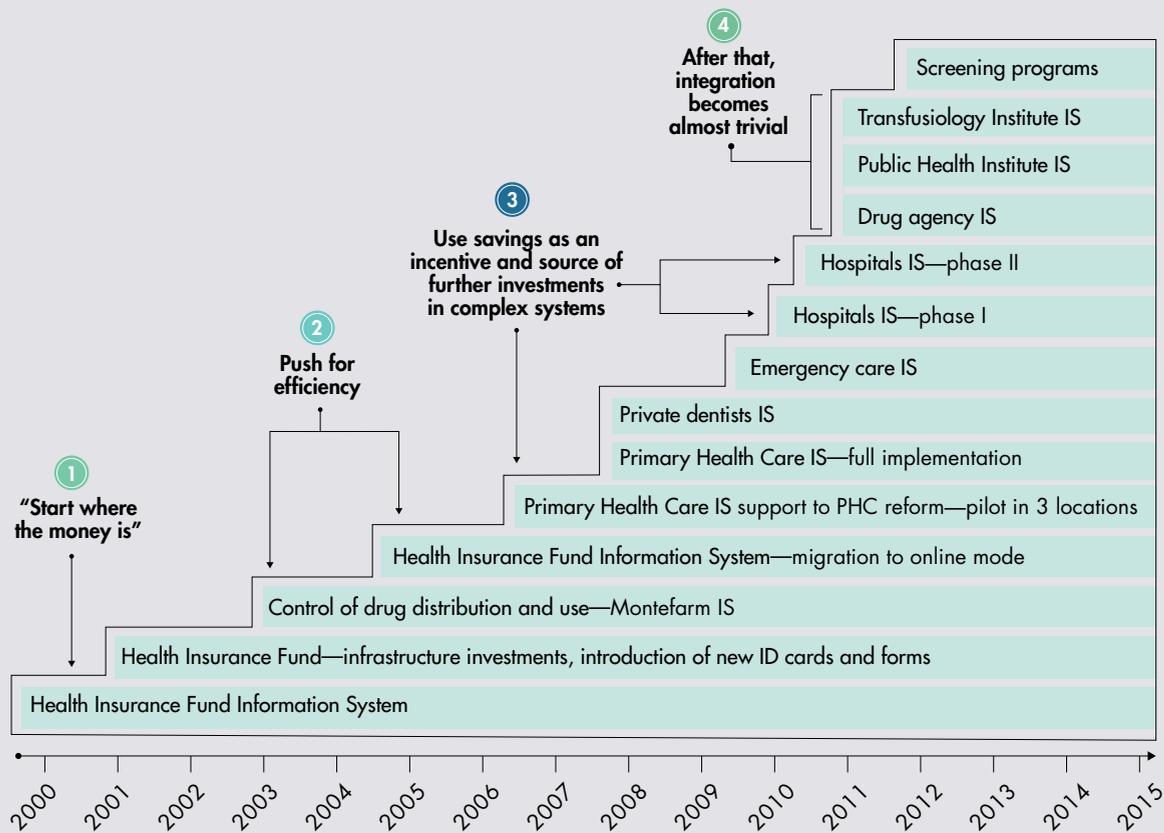
The internet and associated technologies have the potential to expand health services in developing countries, increase health system efficiency, and lead to better patient outcomes. E-health encompasses the

full range of uses of information and communication technologies (ICTs)—from traditional administrative reporting systems to broader Health Management Information Systems (HMIS) to telemedicine, electronic medical records, clinical decision support, and patient portals—and a full range of technologies, including internet and mobile applications.³

Public health and clinical care cannot be delivered safely, with high quality and in a cost-effective manner, without seamless, sustainable, and secure data and information exchange at all levels of the health system. By 2011, 93 of 112 health systems in countries surveyed by the World Health Organization (WHO) had already adopted some form of an e-health or m-health (mobile phone-based) approach, mostly for information programs, emergencies, and telemedicine. Yet overall, deployment has been slow. Too often data are captured in a way that cannot be shared as needed because of interoperability issues or a lack of standards regarding the exchange of health information. Sometimes data are captured multiple times in multiple ways, leading to duplication, inaccuracies, and delays. Often they are not captured at all.

Low- and middle-income countries can do better. First, they can build on the emerging experience of developed countries and adapt systems to local conditions to benefit from e-health without repeating others' mistakes. For example, Montenegro chose "strategic interoperability" as a leading principle in developing its e-health system (figure F3.1). This includes integrative and long-term investment planning and phased implementation; central development for common resources such as shared codebooks and key registries of insured persons, drugs, health professionals, and health institutions; shared

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Figure F3.1 Sequencing of e-health development in Montenegro

Note: IS = information system; PHC = primary health care.

information system infrastructure; and central development of key applications, including electronic health records, e-prescriptions, and e-referrals. Implementation sequencing “starts where the money is” (the Health Insurance Fund Information System) and progresses along the elements of e-health development, taking efficiency and monetary incentives into account. Most business processes are now computerized, serving 340 locations and 4,600 users, including general practitioners and nurses in primary and emergency care, hospitals, pharmacies, and private dentists. Systems are integrated and optimized by use of shared resources. Routine reporting systems provide complete and reliable data. Information is used to make policy-making and management decisions, and efficiency has improved throughout the system.⁴

Second, the absence of “legacy systems” can be an advantage. Countries can now make use of cloud computing to lower system costs and mobile technology to expand services to even the poorest and most remote locations. The potential value of e-health can arguably be greater in poorer countries, since it

expands the reach and impact of the often very small number of highly trained physicians, assists clinical staff in rural and remote areas in making better diagnoses and treatment decisions, and helps make the best use of limited health care funding.

There is early evidence to suggest that e-health solutions, while costly to implement, can bring significant cost savings. This is because the implementation of human resources information systems, logistics management information systems, clinical decision support tools, digital payments, financial management information systems, and SMS reminder systems can address a variety of health system problems, including system inefficiencies, overuse of procedures, inappropriate hospital admissions, corruption and fraud, and missed appointments.

Effective country ownership, good governance, and strong institutional and human capacity are core to e-health planning and implementation. This includes a strong legal basis for managing health-related data with appropriate safeguards.⁵ In addition to ensuring that health workers are able to effectively

use such systems, this also implies the need for strong health informatics training programs in order to develop a qualified e-health workforce. National planning, enterprise architecture, standardization, and interoperability are essential for successful e-health implementation.

User-centered health care systems should leverage the unique capacity of citizens to contribute information and feedback. This enables health systems to connect with clients when and where needed, but clients can also access information and care, at their convenience.

Replacing paper-based patient registers with electronic registers should help improve local health care quality and inform management decision making. Similarly, increasing the use of e-health and m-health approaches and tools can support improved decision making by frontline providers, including GPS-enabled tools and harnessing the revolution that smartphone access to broadband content will bring about in developing countries. In this regard, more emphasis is needed to expand and improve the use and functionality of open-source software platforms (for example, OpenMRS, OpenLMIS, and iHRIS); develop new open-source platforms (for example, for health insurance and training); and support open-source frameworks (for example, OpenHIE).⁶

Information and communication technology platforms (web, social media, SMS campaigns, direct access to personal data in electronic health records) can be leveraged to enhance accountability, transparency, and empowerment of citizens to be active contributors to governance in health and central to health care delivery.

Notes

1. Otto and others 2014.
2. Bilal and others 2011.
3. WHO and ITU 2012.
4. Case study of the Montenegro Health System Improvement Programme (MHIP) by Adis Balota; Montenegro Republican Health Insurance Fund; University of Montenegro, Podgorica; and Zlatan Sabic.
5. EU 2012.
6. See, for example, <http://openmrs.org>, <http://www.village-reach.org/impact/openlmis>, <https://opensource.com/health>.

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