m-Health: remote access

Lisa Morgan and John Rogers
give an actuarial perspective on how mobile technology improves access to health insurance and healthcare, focusing on the underserved

The adoption of mobile devices in the developed and emerging world alike has opened up a new information superhighway where none existed. We can store, process and transmit data roughly a billion times faster and more cheaply than 50 years ago. Astoundingly, any smartphone today has more computing power than NASA had when it put a man on the moon in 1969.

A smartphone can now also be a transformational piece of medical equipment – providing 24-hour access to providers via calls, texts and emails, taking pictures of skin conditions or other issues for analysis, and, in areas with broadband, 'visits' via real-time teleconferencing. These activities have become known as 'm-Health'. Technology is already starting to deliver in various corners of the world, from its use in microinsurance, helping low-income people to access healthcare, to providing health to rural Californians.

Microinsurance and mobile money
According to the charity Health Poverty Action, the world faces a shortage of 4.2 million health workers. Hardest hit are countries in Africa, where only 3% of the world's health workers are burdened with fighting 24% of global disease, using less than 1% of world health expenditure. Africa is a net exporter of healthcare professionals, many of whom leave for the US and UK.

But hope may be in sight. There are currently over 800 million mobile subscribers in sub-Saharan Africa alone, which bodes well, given what is becoming possible with m-Health.

World-renowned American economist Jeffrey Sachs believes mobile phone access is "the most transformative single event in development work of our generation".

Health microinsurance (HMI) schemes seek to provide financial protection and access to healthcare for the poor. Mobile phones can help reduce costs and address challenges with scale-up. They can help with client enrolment, premium collection and claims payment through mobile money platforms for populations in remote areas. Examples of HMI schemes using mobile money platforms include:

● Airtel 'Three For Free': Launched in Ghana in January 2014, this is one of the first mass-scale HMI programmes to use the mobile for marketing, distribution, sales, customer education, customer servicing and claims adjudication and payment. The plan provides basic coverage for hospitalisation risk, life and personal accident. Buoyed by the success of the scheme in Ghana (over half a million customers enrolled in the product during 2014), Airtel has now scaled the model to over half a dozen other markets across Africa. Partners include MicroEnsure and Bupa.
● MTN Y'ello Health: Launched in July 2014, Nigeria's National Health Insurance Scheme (NHIS) has partnered with mobile network provider MTN and with mobile insurance services aggregator Salt & Einstein MTS to establish mobile health microinsurance aimed at covering the poor. This initiative is hoped to help achieve universal health coverage.

● Kilimanjaro Native Co-operative Union (KNCU) Health Plan: The plan was created in collaboration with PharmAccess, KNCU, and Mission for Essential Medical Supplies. It serves individuals in the Kilimanjaro region of northern Tanzania. Mobile phones are used for enrolment and premiums collection.
● Linda Jamii: This microinsurance scheme is a partnership between Britam, Safaricom and Changamka Micro-insurance. It provides Kenyans with comprehensive coverage for inpatient and outpatient services, and some dental and optical services. Members use mobile phones to register and make incremental payments toward the minimum threshold amount required to access services.

Telehealth and beyond

There are many examples of telehealth in HMI schemes (typically telephone contact with a nurse or doctor). 'Dial-a-doctor' programmes are already reaching millions of members of large HMI schemes, as shown in Tables 1 and 2 (*p28*). Unsurprisingly, tech-savvy youngsters under 40 have proved to be the earliest adopters.

According to Michal Matul of the ILO's Impact Insurance Facility, health awareness is low everywhere, but the intensity of the problem is much higher in emerging countries because low-income households use substantially less primary care, if they use it at all. m-Health not only increases efficiency but has huge potential to change health-seeking behaviour. This in turn could translate to
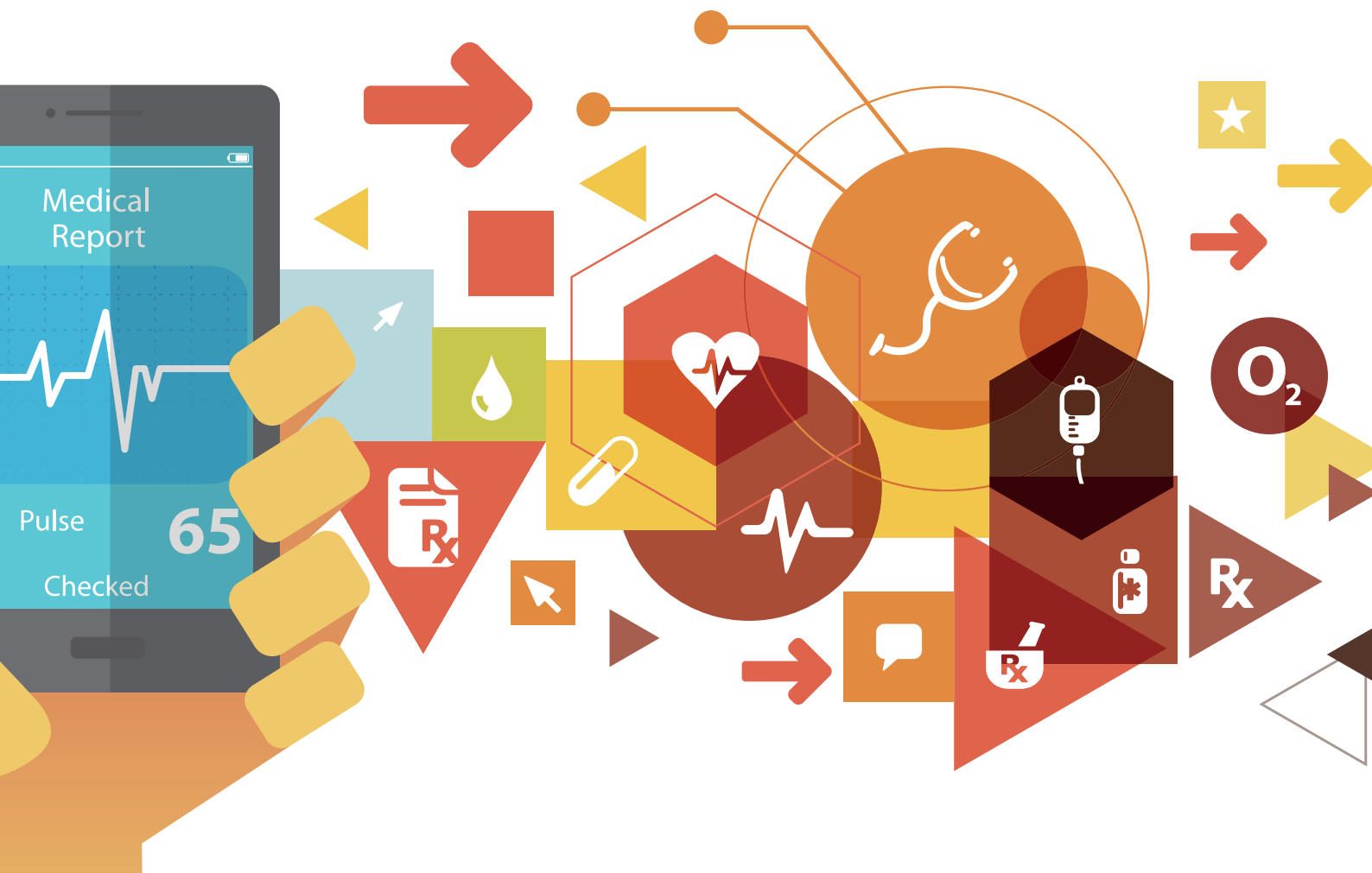
Table 1 Examples of telehealth services in selected countries

Country	Dial-a-doctor Service
India	Aircel and Idea in partnership with Health Net (part of the Apollo group), Airtel with Religare, and Tata Indicom with Healthcare Magic
Mexico	MedicallHome
Bangladesh	Grameenphone Health Line
Pakistan	TeleDoctor
Kenya	Safaricom's 'Call-a-Doc'
South Africa	Hello Doctor
US	Informed
UK	NHS 111

Source: impactinsurance.org

significant savings for entire healthcare systems. With recent experience in Africa, Jonathan Govender of Bupa sees shifting customers' behaviour towards trusting mobile interactions as a key challenge. In the UK, Vitality has just launched its new app, 'Vitality GP'. Time will tell whether we are ready for video chats with our doctors in the UK rather than face-to-face visits. Available to all members, the Vitality app provides direct access to a private GP from home or anywhere, video consultations within 48 hours, calls to doctors 24/7, direct referrals to consultants and delivery of written prescriptions.

Telehealth in California

Patients in rural California also face significant barriers to accessing care. In some areas, the nearest specialist may be a few hundred miles away. While most specialities are not available in rural areas, shortages of psychiatrists, endocrinologists, dermatologists and neurologists are often noticeable. Several hundred Rural Health Clinics (RHCs) provide on-site primary care services, addressing a critical shortage of general practitioners for elderly and low-income beneficiaries of public health insurance (Medicare and Medicaid). Over the past decade, increasing numbers of RHCs also offer telehealth services to connect patients with specialists, through live-video consultations or technology that stores and forwards patient medical data.

A critical challenge to these telehealth programmes is achieving sufficient revenue to cover costs. RHCs receive special funding each time an elderly or low-income patient with public health insurance uses the clinic. However, this payment does not vary depending on whether a telehealth visit occurs; therefore, clinics are not compensated for

providing access to medically necessary care. To address these issues, state and national US governments and NGOs have provided short-term grants to promote telemedicine.

The grant is typically for two years, but rural clinics may continue to use telehealth equipment obtained through the grants for several more years. Some of the programmes sponsored by the grants aim to also calculate actual savings attributable to telehealth programmes. Savings could arise through reduced use of emergency medical transportation, A&E visits and hospitalisations.

Additionally, reforms under the Patient Protection and Affordable Care Act (ACA) have promoted the creation of rural accountable care organisations (ACOs). ACOs consolidate the health risk of rural individuals under one entity, regardless of whether care is performed at RHCs near the patient's location or at other locations. These entities are exploring the use of telehealth to coordinate care, improve patient outcomes and reduce costs. Actuaries have been essential to projecting the financial costs of these programmes.

The journey ahead

According to John Smith, formerly of Bupa and founder of Pula Population Health Innovations and Technologies, we are experiencing a paradigm shift in healthcare owing to the unprecedented confluence of a number of forces of change. m-Health is increasing provider reach, effectiveness and productivity as much as it enables consumers to move to the centre of the healthcare universe and to receive care more naturally in daily life, whether in emerging or developed markets.

As this relatively young technology matures, generates more insightful data, and comes to be better understood, it may help propel provider and insurance transactions beyond the zero-sum logic that has historically limited options for patients. Jeffrey Sachs in his address at the Global Health and Innovation Conference 2013 mentioned that the end of extreme poverty and the effective elimination of preventable disease by 2030 could be a possibility, saying: "We have phenomenal tools that we never had before, let's use them and get the job done." Ⓐ

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Table 2: Activity of telehealth services by health scheme

Country	Name of health scheme	Number of calls received per day	Population covered; Cost information if available
India	Aarogyasri (large government-supported HMI schemes)	25,000 to 30,000 calls per day	37.5 million people in Andhra Pradesh
United Kingdom	NHS 111	37,000 calls per day	55 million people in England
Mexico	MedicallHome	3,000 calls per day	5 million people in Mexico ; monthly enrolment fee is US$5 per month (£3.26)
India	Uplift, Naya Jeevan, and AKAM (smaller-scale HMI schemes)	10 to 15 calls per day	INR 50 (£0.51) per call

Sources: www.impactinsurance.org; www.england.nhs.uk/statistics; healthmarketinnovations.org