

Mobile health: Applications in tackling the Ebola challenge

Dear Editor,

The ongoing Ebola outbreak in West Africa has reached an unprecedented scale in terms of geographical spread, number of cases and deaths recorded as well as proportion of healthcare workers infected. As per the World Health Organization estimates, more than 28,000 cases and 11,000 deaths attributed to Ebola infection have been reported so far.^[1] The epidemic that started in Guinea has now spread to Sierra Leone, Liberia, Nigeria, Senegal, and Mali. Effective outbreak control warrants interventions such as case identification and management, surveillance and contact tracing, sound laboratory services, prompt and safe burials, and adequate use of risk-reduction messaging.

Provision of health services and information via mobile and wireless technologies, popularly known as mobile health (mHealth), can potentially address issues such as disparities in access to health services, limited healthcare infrastructure and human resources, and staggering costs of accessing health services.^[2] Sub-Saharan Africa has remained the fastest-growing mobile region in the world over the last five years in terms of unique mobile subscribers as well as number of mobile connections.^[3] This has been fuelled by ongoing economic growth as well as increasing affordability and accessibility to mobile services including mobile broadband networks. Given the strong penetration of mobile subscriptions in the Ebola affected areas, use of these low cost and high impact measures can be crucial in bringing the situation under control. Assessment of anonymized and aggregated mobile call data records could play an important role in mapping regional population movements, and provide valuable cues on areas to focus for preventive measures, relief assistance, designing surveillance, and containment strategies.^[4] This has been demonstrated for controlling malaria and cholera outbreaks in West Africa and Haiti, respectively.^[5]

Several cellphone based data collection apps are also currently aiding the healthcare workers in collecting and transmitting crucial data such as case identification, possible contacts, and laboratory data in real time. This can speed up collection and analysis of critical epidemiological data at negligible costs as well as aid in supply chain management.^[6,7] mHealth technologies are also serving as a tool for educating the public as well as health care professionals. A massive public awareness campaign has been initiated in Senegal, whereby 4 million short message service (SMS) messages were sent to the general public using a platform originally devised to help people manage diabetes.

Key messages disseminated were regular washing of hands, use of precautions and protective gear while taking care of sick and avoidance of meat of dead/sick animals. The general public was also encouraged to report suspected Ebola cases through a toll-free number.^[8] Innovative mobile applications and games have been made available to educate healthcare professionals by providing them reference materials and guidelines for case management as well as personal protection.^[9]

Despite the enormous potential of mHealth technologies, their effectiveness as epidemiological and community interventional tools largely remains unknown in the absence of well-designed evaluation studies.^[10] Other potential limitations include nonavailability of mobile networks in some areas, hardware and software costs, and absence of universally accepted data collecting standards. High illiteracy rates among some of the affected populations can pose a barrier to the success of SMS-based educational efforts.

Notwithstanding their limitations, mHealth technologies have significant potential as a catalyst to raise awareness and educate people. In the absence of any licensed treatments or vaccines, optimal use of these tools can help limit the spread as well as morbidity and mortality caused by the current Ebola outbreak.

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Conflicts of interest

There are no conflicts of interest.

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