

Mobile health innovation for pregnant women and newborns in the COVID-19 pandemic: a commentary

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The COVID-19 pandemic is upon us and although currently the epicenters are Europe and United States of America the prospects of consequences for health systems, health workers and populations in low and middle-income countries are daunting.

One of the major challenges in a pandemic is reaching health workers with essential information on epidemiology, clinical guidelines, personal protection measures and infection control. This is particularly the case for resource constraint environments in low and middle-income countries. Mobile health solutions have the last decade claimed ability to reach large volumes of health workers in resource constraint environments with up-to-date clinical guidelines and health information. It is now time to raise up to expectations.

In-service training has long been used to improve health workers' competences with varying degrees of success (1, 2). However traditional in-service trainings are designed as a group-based workshop design removes the health care providers from their facilities. Evidence also show that the one-time training does not always improve providers performance (1, 3) and it is suggested onsite repetitive, targeted skill-based learning activities which are spaced overtime improves learning outcome (3). With the current COVID-19 emergency where face to face training and mentoring is a challenge, use of mobile technology could help to fill the gap in training of front line health workers (4). Most emergencies also in the COVID-19 era likely take place peripherally where health workers have inadequate access to clinical guidelines and reference materials to handle situations that are beyond their skills (5). Promotion of health services via mobile electronic media (mHealth) like mobile phones has been suggested as a means to bridge this outreach gap (6). In 2019, 98% of adult people in low and middle income countries had a cellular subscription, and approximately 72% of people in Sub-Saharan Africa have a cellular subscription and more than half of people in remote areas have a mobile phone (7). Mobile devices are in increasing number being used to provide continued training support to frontline health workers and remote providers, through access to educational videos, information, interactive exercises, and can allow for continued clinical and skills monitoring (8). Necessity is a driver for technological innovation as previously seen in sub Saharan Africa with development of the mobile banking systems and dual sim cards, and we are now witnessing examples of health care innovation in the wake of the COVID-19 pandemic.

We have, in a consortium of non-governmental organizations, academia and the private sector, and in a collaboration with International Confederation of Midwives (ICM) and UNFPA, responded to the COVID-

19 pandemic by rapid development of a COVID-19 module in an existing mobile job and training aid called the Safe Delivery App (SDA) (9). The SDA, a freely available tool, is an emergency obstetric and neonatal care training aid for skilled birth attendants in low- and middle-income countries. Launched in 2015 it uses animated videos for clinical instructions and provides access to evidence-based and up-to-date clinical guidelines. In addition to the animated videos four basic features guide health workers in the App: action cards, drug lists, practical procedures, and MyLearning an individualised e-learning component. MyLearning, was developed in 2016 in response to requests from partners to move beyond push messages and simulate self-learning within the App through gamification principles. The app is free of charge and follows WHO guidelines. Through continuous development it currently exists in two global versions (English, French) and 14 language versions and has more than 120,000 downloads globally, with greater use across Africa and South East Asia.

The COVID-19 module in the SDA contains an animated short movie on infection prevention and personal protection equipment during COVID-19, figure 1. It also contains latest evidence on COVID-19 consequences for pregnant women and newborns and practical procedures for handling deliveries and newborns during the pandemic. The language and illustrations are simple with a focus on local adaptable measures such as recipes and procedures for making your own alcohol rub. One challenge is the rapid evolving evidence and ever-changing guidelines. To make ongoing changes cost-effective the film speaks and visual is held in general terms while written text in the film and action cards/practical procedures is changeable in a content management system. User patterns of the module in the app will be monitored continuously.

mHealth responses to the COVID-19 are emerging. The potential for telemedicine is obvious as well as health information systems support for outbreak monitoring and management (10, 11). Interestingly, there is also a push towards open sharing of not only clinical and epidemiological data but also social media data from technological companies that can support community surveillance, contact tracing, social mobilization and health promotion (12). The global community claim that mHealth have the potential for rapid response, real time data, up-to-date clinical guidelines in the hands of health workers. The ultimate test is here in the COVID-19 pandemic. We are calling for the mobile health community and global partners – it is time to raise up to expectations of the potentials of mobile health.

Disclosure of interests

None declared. Completed disclosure of interests forms are available to view online as supporting information.

Contribution to authorship

SL designed and wrote the initial draft of the commentary. SL, BLS, AN, AMFB, AF, AN, AU and HSN were involved in the development and implementation of the described intervention. All the authors reviewed and approved the manuscript.

Details of ethics approval

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Figure 1: The COVID-19 module in SDA - developed by Maternity Foundation, University of Copenhagen and Laerdal Global Health in collaboration with ICM and UNFPA.

Summary box

- **The COVID-19 pandemic is a stimulus for health care innovation**

- **Mobile health (mHealth) technology have the potential to provide a rapid response, real time data and up-to-date clinical guidelines in the hands of health workers in low- and middle-income countries**
- **We have used an existing mobile health app called Safe Delivery App that is widely used in Sub Saharan Africa and Asia, as a platform to create and disseminate a COVID-19 job and training aid for health workers**
- **We are calling for the mobile health community, global partners and private companies that it is time to raise up to expectations of the potentials of mobile health**

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