

e-Health and Service Delivery in Sub-Saharan Africa

Prof. Fatima Suleman expounds on the role of e-health in Africa

Increasingly people within countries are facing instability, violence, pervasive insecurity, and now epidemics and pandemics. These have consequences for the daily running of a health system for the determination of healthcare burden in affected settings. In order to be able to manage healthcare delivery and services in these situations, the development and use of digital health tools in these environments of uncertainty has increased.

What are digital health tools? According to the World Health Organization (WHO) digital health¹ is “the field of knowledge and practice associated with the development and use of digital technologies to improve health”, and defines eHealth as “the use of information and communication technologies (ICT) for health”. Thus digital health incorporates eHealth, but includes a much larger set of smart devices and connected equipment including the use of digital technologies. Digital

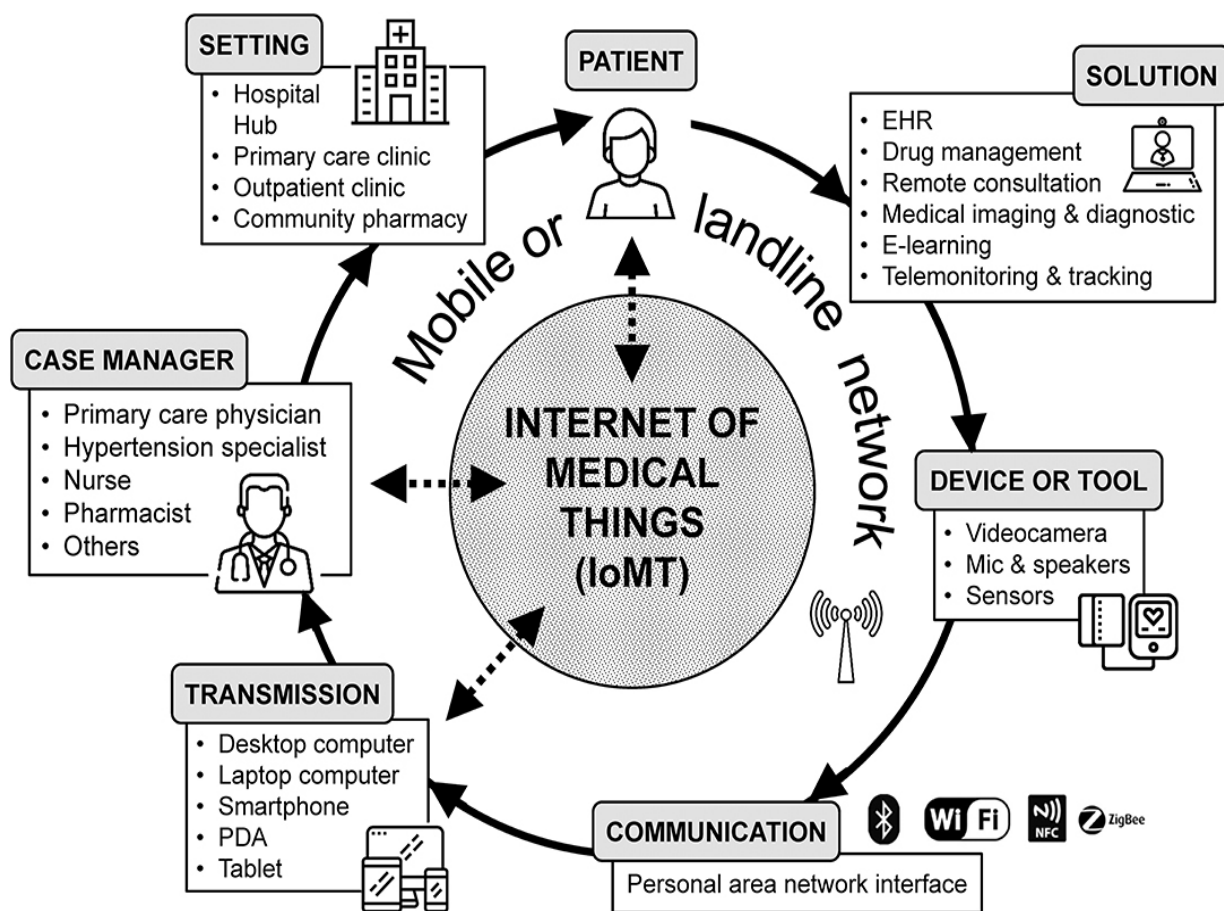
health technologies include telemedicine, electronic medical records, wireless health devices (wearables), mobile health (mHealth) the internet of things, artificial intelligence, big data, robotics and innovative software applications. All these technologies have the potential to revolutionize healthcare delivery in these disruptive situations.

WHO recommends that digital health technologies be implemented in low-and-middle-income countries that encompass the following health system strengthening building blocks: (i) service delivery, (ii) health workforce, (iii) health information systems, (iv) access to essential medicines, vaccines, and technology (v) financing, and (vi) leadership/governance². As African countries are faced with increasing conflict and impact of climate change on health and their population, it is useful to consider what digital health interventions (DHI) are found



Rocket health medical call center, Uganda

Prof. Fatima Suleman, Research Professor: School of Health Sciences, University of KwaZulu-Natal; South Africa. Sulemanf@ukzn.ac.za



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in the continent in terms of WHO recommendations.

A study in 2022³, found that four countries, viz. Ethiopia, Uganda, Kenya, and Malawi, contributed 34% of the DHIs implemented in sub-Saharan Africa between January 2011 and December 2021. Majority of these interventions (n=738) targeted service delivery (82%) and therefore health care providers, with only 34% targeting more than one building block. This is a concern as there are limitations that could result in duplication across the building blocks and poor integration as well. The authors found that most interventions targeted mining of data rather than improving service provision.

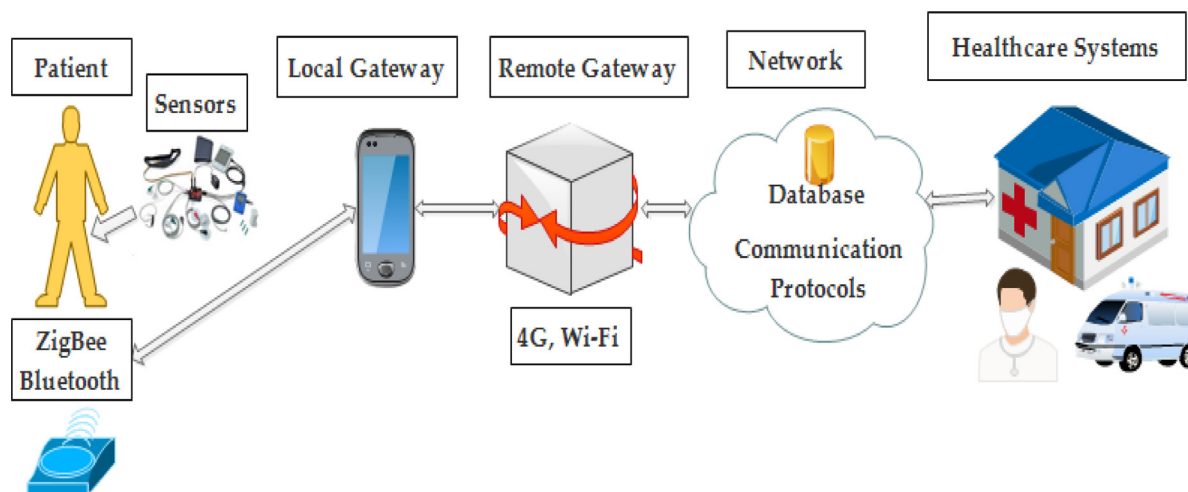
However, COVID-19 may have changed some mindsets. During the pandemic m-health (mobile health) technologies expanded. In terms of data collection, Nigeria is one country that used mobile positioning technology during the pandemic to monitor and track mobile phones of those affected with the virus, their confirmed contacts and suspected cases⁴. In terms of health education, the Whatsapp platform was adopted to (1) disseminate health information to the public as it is widely used and less expensive to them (however, not protected against distribution of inaccurate information from non-official channels) and (2) share treatment and case management by healthcare professionals as pandemic evolved⁵.

Medication adherence is another area in which

m-health is being piloted. An example is a SMS platform called SimMed. Kenya, Lesotho and Nigeria used this platform during the COVID-19 pandemic, that required patients to log into a central server each time they take their medication. It reminded them when they forgot, and also alerted the patient's physician to make follow ups in cases when patients fail to adhere to their medication⁶.

e-health for clinical management in the COVID-19 evolved to include remote consultation and post care to those patients requiring medical attention which did not involve physical examination therefore reducing unnecessary hospital visits; an issue of additional importance due to (1) government imposed lockdown restrictions and (2) the increased hospitalization of COVID-19 infected patients requiring critical care. Pharmacists were also quick to adopt a similar approach during the pandemic.

The concept of a tele-pharmacy is the same as a traditional pharmacy in that none of the roles or scopes of practice have changed. The main difference is that the pharmacist performs tasks remotely through audio and video technology. The pharmacist expands their knowledge outside of their current box, allowing them to perform their duties from a different location and access rural or urban medically underserved locations which previously had no pharmacist access before. In COVID-19, pharmacists pivoted to whatsapp messaging



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and video calls to maintain interaction with patients, and provide them with some form of contact to reduce isolation and anxiety. Medication deliveries became part of the service. These additional ways for pharmacists to interact with patients is not likely to change now that the pandemic is over. More likely, these will continue to be used to ensure that the critical patients have the face to face interaction and attention required.

With Universal Health Coverage being developed or implemented in many African countries, health care professionals are more likely to be working in interprofessional practices, and there is a need to be proactive with offering models and ideas for managing patients cohesively. This might involve having all professionals operating under one roof (one stop health facility), but with additional services like coffee shops and bookshops to make the waiting easier for patients and accompanying persons. Pharmacies are more likely to move towards robotics automating medication filling and supply. There have been many new models tried too for patient management. Prior to the pandemic, the use of robots seemed far fetched. During the pandemic Rwanda used robots to screen potential patients and incoming travelers for the virus.

Patients are also increasingly becoming aware of their own health and wanting to control their health information themselves. Patients today use the Internet and social media to request information on health issues, select health care practitioners, share experiences of health with peers. Technology that is used today can collect data and information, either automatically through daily use (e.g. health-tracking apps, wearables) or through patients' input (e.g. online ratings of healthcare providers, blood pressure readings). Employers are using digital technologies to provide incentives to their employees to maintain healthy lifestyles and good health. Legislation on use of this information is slower to emerge. It is still difficult for a patient in Africa to be able to access their health information easily and to control who has access. This is something that will need to change in future.

In conclusion, Sub-Saharan Africa is endowed with digital health solutions in both numbers and distinct functions. It is lacking in coordination, integration, scalability, sustainability, and equitable distribution of investments in digital health. Digital health policymakers in sub-Saharan Africa need to urgently institute coordination mechanisms to terminate unending duplication and disjointed vertical implementations and manage solutions for scale. Central to this would be to build digital health leadership in countries within SSA, adopt standards and interoperability. More importantly, patients should be able to control the use of their information and have ready access to this. With multi-factor authentication already in place for other technologies, instituting this for patients to manage their own information access should not be too far a leap.

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