



AFRICAN STRATEGIES FOR HEALTH



Photo by Kara Chermiga

TRENDS IN DIGITAL HEALTH IN AFRICA: LESSONS FROM THE AFRICAN STRATEGIES FOR HEALTH PROJECT

Background

The rapid growth in access to information and communication technology (ICT), particularly mobile phones and network connectivity, in Africa has created opportunities for health programs and systems to harness these technologies to positively impact health in the region. Over the last five years, the African Strategies for Health (ASH) project, in support of USAID/Africa Bureau

priorities, has engaged with thought leaders, innovators, and implementers on cutting-edge issues to build capacity and advance collaboration in the use of digital technology to improve health outcomes. Key contributions of the ASH project were to expand the body of knowledge around mobile health solutions, engage public and private sectors in efforts to strengthen partnerships in mobile health, and explore emerging digital technology applications and opportunities for improved health service delivery and response.

In order to enhance understanding of the impact of the project's efforts to support the use of mobile and digital technologies for health and to identify opportunities for future action, ASH conducted a consultation with the mobile and digital health community. Individuals working at the national, regional, and global level on digital health were asked to share their perspectives on the current barriers and opportunities to support improvements in public health through digital technology innovation. This brief presents key findings of the consultation and outlines trends, barriers, and opportunities to scale digital health in Africa, as identified through the consultation and informed by the work throughout the life of ASH.

African Strategies for Health (ASH) is a five-year project funded by the U.S. Agency for International Development's (USAID) Bureau for Africa and implemented by Management Sciences for Health. ASH works to improve the health status of populations across Africa through identifying and advocating for best practices, enhancing technical capacity, and engaging African regional institutions to address health issues in a sustainable manner. ASH provides information on trends and developments on the continent to USAID and other development partners to enhance decision-making regarding investments in health.

ASH Digital Health Technical Materials

mHealth Compendium Series



VOLUME 1



VOLUME 2



VOLUME 3



VOLUME 4



VOLUME 5



SPECIAL EDITION



Regional Actors Addressing Digital Health in Africa: Comparative Advantages, Challenges and Opportunities



mHealth Opportunities and Lessons Learned for Family Planning Programming



Africa Regional Meeting on Digital Health for Overcoming Barriers to EPCMD and Achieving UHC: Meeting Report



Scaling up Mobile Technology: Applications for Accelerating Progress on Preventable Maternal and Child Deaths



Use of Technology in the Ebola Response in West Africa



Investing in Technology and Innovations for Human Development in Africa: Meeting Report



Landscape Analysis and Business Case for mHealth Investment in Angola



The SMS Mother Reminder System in Gulu District, Uganda: What are the Costs?



Navigating and Using the Pilot SMS Mother Reminder System in Gulu, Uganda: The Village Health Team Perspective

ASH Participation in Digital Health Events



DATE	LOCATION	TITLE	ROLE
November 2012	Tanzania	Using Mobile Technology to Improve Family Planning and Health Programs	Co-organizer
November 2013	Ethiopia	Mobile Technology: Bringing the Community and Health Systems Together	Developed presentation for session at International Conference on Family Planning
June 2014	Tanzania	New Technologies, New Opportunities, and New Vision for Health Care Financing	Developed presentation for USAID Healthcare Financing Capacity Building Workshop
October 2014	Morocco	Joint USAID-African Development Bank Ministerial Meeting on Investing in Technology and Innovations for Human Development in Africa	Co-organizer
December 2014	Nigeria	ICT for Health Care Financing in Nigeria	Developed presentation for USAID health financing workshop
May 2015	Malawi	Africa Regional Meeting on Digital Health for Overcoming Barriers to EPCMD and Achieving UHC	Co-organizer
January 2016	Indonesia	Harnessing the Power of Digital Health	Facilitated session at 2016 International Conference on Family Planning
May 2016	Kenya	Practical Implementation of the Principles for Digital Development	Organized participatory discussion session at ICT4D Conference 2016
July 2016	Washington, D.C.	Cracking the Nut Health Conference: The Role of Communities in Building Resilient Health Systems	Served on the Conference Advisory Committee

Approach

Data collection methods for the consultation included an online survey and in-depth key informant interviews. Information gathered was triangulated with ASH's own experiences and knowledge accumulated over the course of the project.

The survey was distributed electronically to members of ASH's mobile and digital technologies for health listserv. The list includes individuals who were the point of contact for programs featured in the mHealth Compendium series, have participated mHealth regional meetings or other events, or have registered

to receive ASH mHealth materials. Of the 22 respondents, over half indicated that they work for an implementing partner or other NGO, several in research/universities, as well as one or two each working in the private sector, government, or donor organizations. Over half of respondents were located in the US, Europe or Australia, along with individuals from DR Congo, Cameroon, Kenya, Tanzania, Madagascar, Rwanda, Indonesia, and Malawi. In response to a question of where they work, a wide number of countries were covered, predominately in Sub-Saharan Africa (across regions), as well as South Asian countries and Indonesia.

Survey respondent characteristics:

- 13** indicated that they work for an implementing partner or other NGO
- 4** work in research or at universities
- 2** work in the private sector
- 2** work in the government
- 1** works at a donor organization

About Digital Health Survey Respondents

Key informant characteristics:

- selected in consultation with USAID
- possess substantial digital health experience in Sub-Saharan Africa
- commented on both the contributions of the ASH project and Africa Bureau-supported activities
- commented on trends, barriers, and needs in digital technology for health in the region

Key informant interview respondents are listed in the annex.

About Digital Health Key Informants

“It has been very helpful to have been featured in the compendium as a case study to help promote our work. We have also used it recently when thinking through how we are going to scale up our mHealth initiative.”

mHealth Compendium

The mHealth Compendium series, produced by ASH, has expanded the body of knowledge and increased access to standardized information on mobile technology solutions for health. Each of the six volumes in the series orient the reader to mobile technology for health, provide references to key resources, and share profiles of mHealth pilots and programs across a number of health application areas. As the mHealth field has continued to develop, access to information on programs which have grown in scale and sustained over time has been in particular demand. The sixth and final edition – mHealth Compendium Special Edition 2016: Reaching Scale – was produced in recognition of this need and the progress in the field, and presents ten in-depth profiles of ongoing mHealth programs which have successfully grown in scale. The Compendium series has been translated into French and Portuguese, serving as a significant resource for mHealth information available in those languages.

The profiles featured in the six volumes of the mHealth Compendium series were compiled into an online database. This database allows users to search for programs based on key characteristics across a range of categories including health service area and application type (for example, behavior change communication, data collection, finance, logistics, and service delivery). Since its launch in April 2015, the database has been accessed over 10,000 times, with over 1,200 unique visits. It has reached users in Kenya, South Africa, Nigeria, Ethiopia, India, and Pakistan, among others.

Survey and interview respondents noted the mHealth Compendium was:

- ✓ ... useful as a reference tool
- ✓ ... used to ensure that they were up to date on many existing mHealth activities, organizations involved, and types of systems being developed
- ✓ ... used as a reference check to improve their own service
- ✓ ... a useful guide in developing meeting agendas and papers
- ✓ ... a method of identifying potential collaborators in a geographical region

Most respondents (19 of 22) to the online survey were familiar with the mHealth Compendium series. Fourteen of the respondents indicated that their organization had a program featured in one or more editions. All who were familiar with the series found it to be of value to the digital health field and had shared the resources with others. The French, Portuguese, and online database were each noted to have been used and/or shared by several individuals.

Additional specific uses noted included being used as a reference in thinking through the process of scaling up with mHealth initiative. The mHealth Compendium volumes served as a primary resource to identify programs in the production of a comprehensive landscape report on the use of mHealth applications for frontline health workers.¹



Survey respondents used the mHealth Compendium resources to:

- ✓ ... develop a new project or programming
- ✓ ... disseminate information on their own featured programs
- ✓ ... develop or prepare a new policy
- ✓ ... incorporate digital health components into existing programs or projects
- ✓ ... advocate for digital health in programs or policies
- ✓ ... update district health guidelines
- ✓ ... inform eHealth policy work
- ✓ ... advocate for government ownership as well as to potential donors



1. Agarwal S., Rosenblum L., Goldschmidt T., Carras M., Goel N., Labrique A. Mobile Technology in Support of Frontline Health Workers: A comprehensive overview of the landscape, knowledge gaps and future directions. Johns Hopkins University Global mHealth Initiative. 2016

Regional Digital Health Meetings

ASH has supported the Africa Bureau, in collaboration with the Global Health Bureau, in the development, implementation, and documentation of a series of regional meetings on mobile and digital technology for health in the African region (see Figure 1).

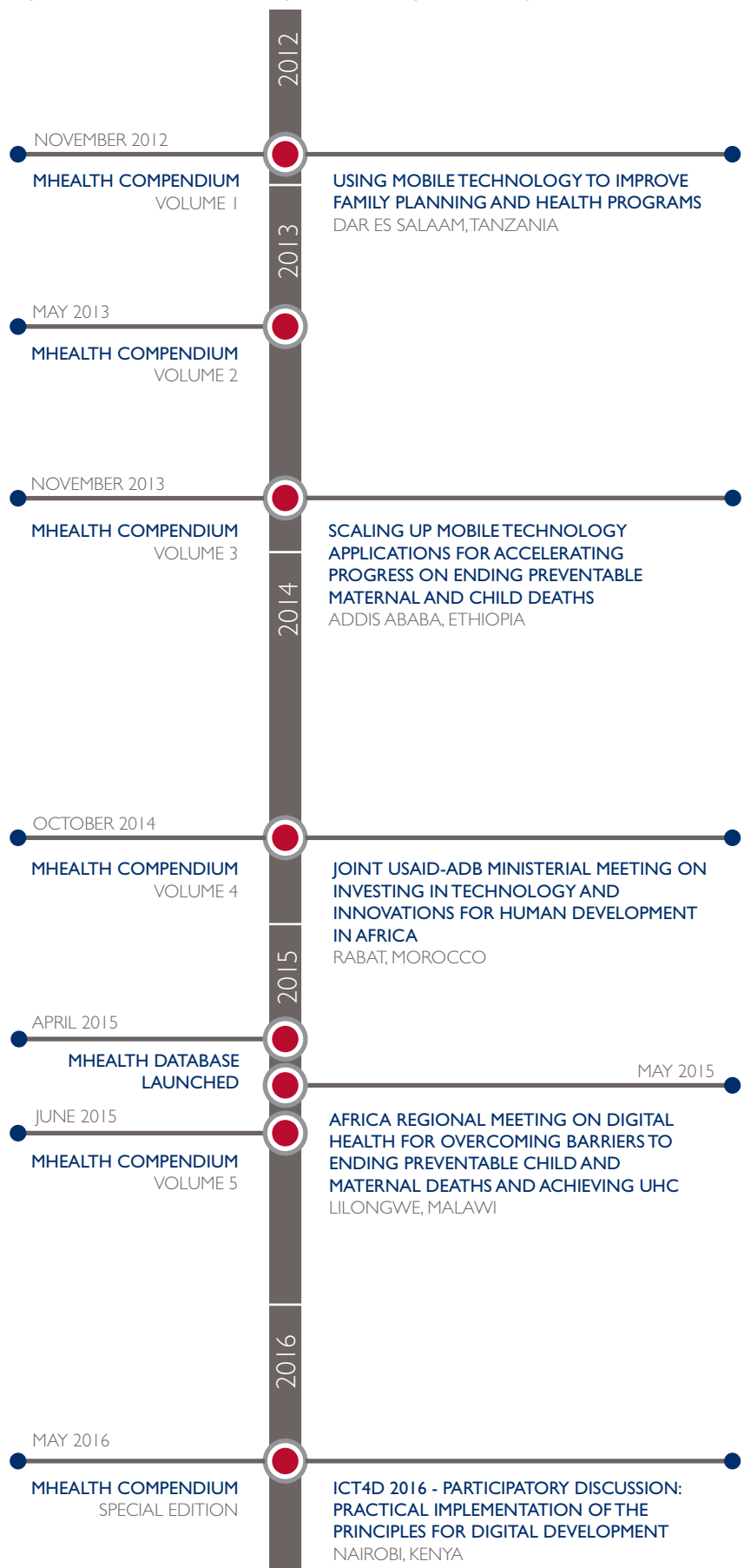
The regional meetings have taken a country team approach, bringing together teams comprising country government, non-governmental organizations, private sector, and USAID mission representatives to exchange ideas and information on how to adopt and expand mobile technology for health.

The November 2012, "Using Mobile Technology to Improve Family Planning and Health Programs" in Dar es Salaam was the first USAID organized-meeting on mobile technology for health. Country team self-identification of next steps to advance progress in their countries is a key component of the meetings. The information shared and connections made at the Dar es Salaam meeting informed the Africa Bureau's work moving forward in the area. Thirteen country teams participated in Tanzania, developing vision statements and action plans. The results of the 2012 meeting were incorporated into the Addis Ababa meeting, where countries reported progress against their action plans a year later. At the 2015 regional meeting in Lilongwe, many countries reported progress from small-scale pilots to the existence of country strategies and movement into scaled programs. Key actions moving forward from 2015 included developing plans for national-level integration of mHealth activities and standards; pursuing cross-sectoral and public-private partnerships initiated at the meeting; and fostering collaborative discussion with stakeholders from across relevant government agencies.

Global Health Bureau activities have also been benefited from and been informed by the mobile and digital health regional meetings. For example, the development of the Family Planning High Impact Practice mHealth-focused brief can be traced back to a need identified by participants at the Dar es Salaam meeting.² Discussions from the Tanzania meeting also helped spark the creation of mHealth Alliance's mHealth Expert Learning Program (mHELP) initiative, supported by Johnson & Johnson, which has led to further programs. Multiple key informants noted the importance of digital health-focused meetings being held in Africa for reasons including peer-to-peer information-sharing, comparing progress across country neighbors, promoting local ownership and building a strong regional network, and showcasing the work of local innovators.

2. High-Impact Practices in Family Planning (HIP). mHealth: Mobile technology to strengthen family planning programs. Washington, DC: USAID. July 2013.

Figure 1. ASH Timeline of Regional Meetings and Compendium Releases



Trends in Digital Health in the Region over last Five Years

Survey and interview respondents were asked to describe the primary shifts in digital technology for health in Africa over the past five years. A number of important trends were identified.

Increased recognition of the importance of digital technology and government leadership

There is increased awareness of the value of transitioning to digital systems and of the opportunities made possible through mobile technology innovations. The Ebola Virus Disease outbreak put into view the need to be able to track, analyze, and share data quickly and effectively. In certain areas, such as data collection, digital options are becoming standard and expected.

Ministries of Health involvement in leading the process to coordinate digital health solutions in their countries has increased, with support and capacity-building from a number of actors including agencies such as the WHO. More countries have established or are in the process of creating or updating national eHealth policies and strategies. A handful of countries have led the way with achievements in digital and mobile integration, providing inspiration for others.

Reduced barriers to entry and implementation

The greater availability of mobile devices, including the growing access to and use of smartphones, decreasing costs of hardware and devices, as well as better network connectivity (including broadband) has expanded opportunities for the inclusion of digital technology in programming in locations with sufficient access. The number of local innovation hubs, which provide varying types of support and collaboration opportunities for innovators, and digital entrepreneurs responsive to local needs have grown tremendously in some countries, and improvements in design tools as well as distribution platforms (such as Google Play) has made it possible to get ideas developed and available faster.

Focus on interoperability

Governments, donors, and implementing organizations are recognizing the importance of integration and interoperability, to allow for digital programs to transfer and retrieve information across systems. Conversations around the importance of standards and how to learn from implementation lessons to build a system to allow multiple solutions to work together are now occurring, with wide-scale adoption of these principals still in progress. There is a move toward supporting and encouraging broader system and platform-level support with a focus on scale, and increased awareness of the need for harmonized approaches.

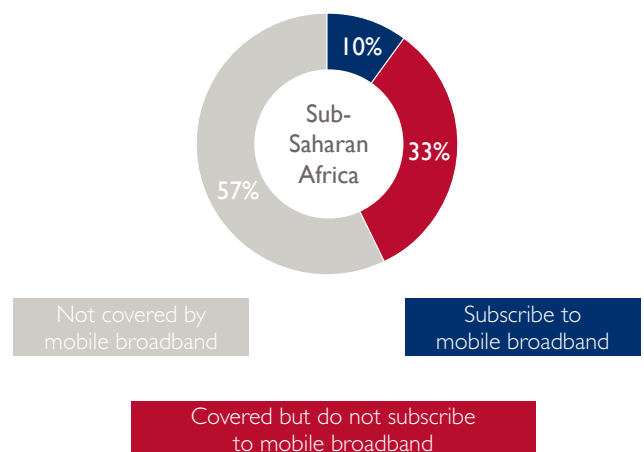
Barriers to the Scale-Up of Digital Health

Key challenges to the growth of digital technology for health vary across the continent, and highlight the importance of examining the context and enabling environment for digital health at the regional, national-and sub-national levels. Important barriers to scale-up identified by respondents fall into the categories below.

Infrastructure and Device Access

Adequacy of infrastructure to support digital health programs at scale vary by country. Technical infrastructure was mentioned by a number of respondents to the online survey and interviews, as well as a comment frequently mentioned in regional meetings. Access to reliable electricity in many countries is poor, particularly in rural areas. Network connectivity is improving, but still varies greatly, with access to broadband particularly scarce. In Sub-Saharan Africa, 57% of the population is not in a location with mobile broadband access (Figure 2).

Figure 2. Mobile Broadband in Context, 2015



Reproduced from: GSMA, The Mobile Economy Africa 2016

It was noted that, at the institutional level, infrastructure and device access is quickly improving; with individual-level access will continue to remain a challenge. Mobile subscriber penetration in 2015 ranged from 33% in the Economic Community of Central African States, to 47% in the Economic Community of West African States.³

Funding

Lack of sufficient funding for digital health programs was frequently mentioned by respondents. Securing commitment by both governments and donor organizations is a noted challenge. A particular concern was the need for initial start-up costs, which can be a barrier to implementation. For long-term sustainability, the need to on-going commitment and funding solutions which acknowledges the need for digital solutions to continue to be adapted and responsive to user needs over time.

3. GSMA, The Mobile Economy Africa 2016

Human Resource Capacity

Greater national-level technical capacity is needed at multiple levels to fully harness the gains possible from digital solutions for health. Gaps exist in software engineering as well as the technical capacity to conduct business case analyses and to design systems to be responsive to user needs. Digital health systems create and disseminate data at a faster rate and in greater quantities than was previously possible. At the end-user level, the ability to analyze, make use of, and effectively translate that data is a critical need for effectively using these systems for national, district, and local decision-making. Effective use of data may require a change management process to adjust the current system to incorporate the new tools and information available.

Policies and Government Leadership

A lack of clear standards and strategy at the national level inhibits growth of integrated digital health approaches. Leadership from ministries of health and more broadly from government in ICT for development is needed to encourage growth, particularly in enabling public-private partnerships. Greater collaboration between international organizations, governments, and local implementing organizations is needed to avoid vertical implementation of non-compatible or duplicative programs. These points echo the ongoing and forward-looking discussions being had in the digital health and the ICT4D field more broadly to collaborate across sectors to build the enabling environment for ICT.

Opportunities for Further Scaling Digital Health

Guidelines and Support for Government Leadership

Progress in the establishment of country policies and mechanisms for supporting and managing the digital health ecosystem vary at the country level. International donors and organizations such as the WHO are and can continue to support the development of national-level strategies. Support at the national level involving stakeholders working in country around digital health and ICT is needed, including at an organizational level to build systems which encourage collaboration. Governments have also expressed interest in learning from their peers in how they are addressing these issues. Regional-level meetings and discussions are also valuable, to allow countries to learn from each other to more efficiently design their strategies and plans most appropriate to their current context and environment.

Research for Policy Recommendations

In cases where digital technology replaces a similar standard method (such as the use of mobiles or tablet-based data collection rather than paper-based) the difference in cost, timeliness, and quality of results is perceived to be understood. MHealth and digital health are not monolithic, the terms encompass a range of potential applications, many of which are not just replacing a standard operating method, but are



Participants at the Africa Regional Meeting on Digital Health, Lilongwe Malawi, May 2015

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providing new and innovative program approaches and activities. It is particularly in these innovative use cases that additional impact and cost analysis research would be valuable. Connecting research results directly to guidelines for implementation, and providing third-party information on where various technology opportunities may be appropriate would help countries and donors in best allocating limited health sector funds.

Human Capacity Building

Capacity-building at the national level is needed to provide the local support and understanding needed to build, maintain, and fully utilize digital health systems. Training and capacity building in data use, and fostering a culture to demand data and evidence is needed to ensure gains are realized from the systems developed. This might include partnering African and developed-country universities to increase local technical experts. Actively ensuring language is considered in the development and supply of technical capacity is important, to ensure Francophone resources, for example. Efforts currently underway to address immediate needs include an initiative with WAHO to create a health informatics team able to deploy to countries in the region. For existing technical experts, opportunities to network, share, and learn from the experience of colleagues across the region are desired and would serve to reinforce an emphasis on collaboration and sharing.

Conclusion

Substantial growth in digital technology solutions for health and their implementation in Africa have occurred in recent years. USAID's Africa Bureau and the ASH project have worked to understand, support, and disseminate knowledge in this area. Opportunities to support scale up of digital health in the region remain. The continued growth in digital solutions for health will happen through a combination of government, donor, and private-sector initiatives. National-level leadership in creating an enabling environment which allows for open communication across stakeholders – for health as well as technology solutions in other sectors – is growing and needs continued support. ■

This summary brief was prepared by Sherri Haas (ASH), with contributions from JoAnn Paradis, Sarah Konopka, and Alison Corbacio (all ASH). The ASH team would like to thank the interview and online survey participants for sharing their knowledge and insights.



ANNEX A

KEY INFORMANT INTERVIEW RESPONDENT	SELECT AFFILIATIONS
Smisha Agarwal	Associate Faculty, Johns Hopkins University Global mHealth Initiative
Amanda Puckett BenDor	Technical Advisor, Digital Health and Knowledge Management IntraHealth International; Co-Chair Global Digital Health Network
Peter Benjamin	Country Director, South Africa, Health Enabled
Peggy D'Adamo	Knowledge Management/IT Advisor, USAID Global Health Bureau, Office of Population and Reproductive Health
Andrew Karlyn	Regional Advisor, Africa, USAID Global Development Lab
Alain Labrique	Director, Johns Hopkins University Global mHealth Initiative; Chair, WHO mTERG
Ousmane Ly	General Director, National Agency of Telehealth and Medical Informatics, Ministry of Health Mali; Member, African Network for Digital Health (ANDH)
Lungi Okoko	Senior Malaria Advisor, USAID President's Malaria Initiative
Adele Waugaman	Senior Advisor for Digital Health, USAID Global Health Bureau

Additional information can be obtained from:

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