Mobile for Development

mHealth Country Feasibility Report

Nigeria

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Norad

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Mobile for Development

GSMA Mobile for Development brings together our mobile operator members, the wider mobile industry and the development community to drive commercial mobile services for underserved people in emerging markets. We identify opportunities for social, economic and environmental impact and stimulate the development of scalable, life-enhancing mobile services.

Mobile is the predominant infrastructure in emerging markets. We believe it is the transformative technology that enables us to put relevant, impactful services into the hands of underserved people. Since the creation of GSMA Mobile for Development we have partnered with 50 mobile operators, rolling out 104 initiatives, impacting tens of millions of people across 49 countries.

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Background

The GSMA Mobile for Development mHealth programme connects the mobile and health industries, with the aim of developing commercially sustainable mHealth services that meet public health needs.

In June 2012, the GSMA mHealth programme launched the Pan-African mHealth Initiative (PAMI). PAMI has been funded by UK Aid and Norad to support the scale-up of mHealth in nutrition and maternal and child health, in support of the Millennium Development Goals 4, 5 and 6. PAMI is closely aligned to the UN's Every Woman Every Child Initiative, Scaling Up Nutrition (SUN) and the Global Nutrition for Growth Compact.

At Nigerian country level, PAMI is aligned with the Saving One Million Lives initiative launched by President Goodluck Ebele Jonathan, where mHealth was identified as a critical ICT enabler.

For more information on GSMA Mobile for Development mHealth, please contact mhealth@gsma.com or visit www.gsma.com/mobilefordevelopment/programmes/mhealth

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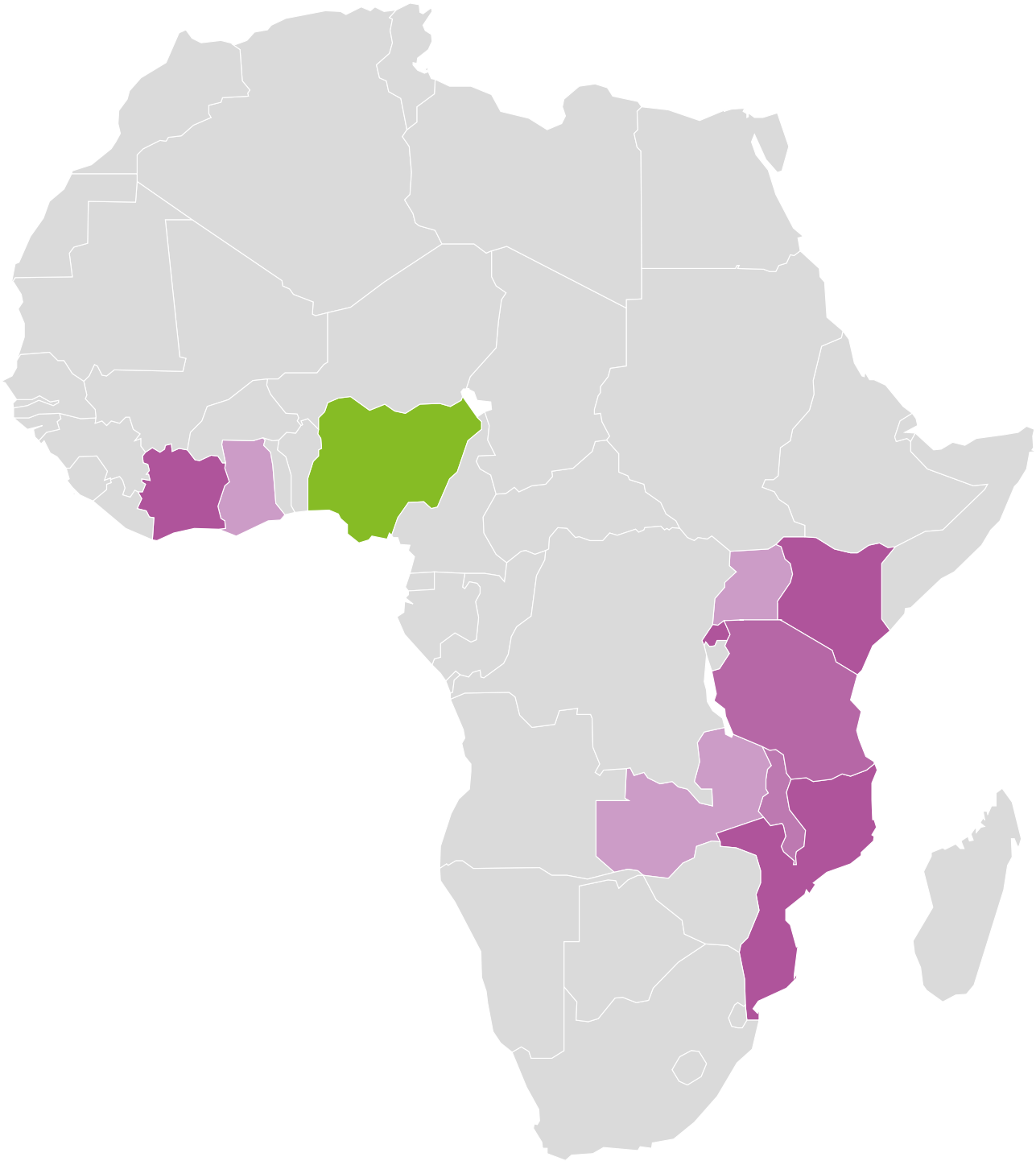


Under the auspices of PAMI, a 3-year 10-country nutrition initiative aims to develop mHealth services in the area of maternal and child health, specifically demand generation, registration and data surveillance, in Sub-Saharan Africa:

Nigeria has been selected as a GSMA priority country.

- Côte d'Ivoire
- Ghana
- Kenya
- Malawi
- Mozambique
- Nigeria
- Rwanda
- Tanzania
- Uganda
- Zambia

Executive summary

This report aims to carry out a comprehensive analysis of the current state of mHealth in Nigeria. Information has been gathered and presented in the context of the GSMA Pan-African mHealth Initiative and more specifically is aligned to the aim of the 10-country nutrition initiative – to develop commercially sustainable mHealth services that meet public health needs, in the areas of demand generation, registration and data surveillance.

Within the context of mHealth feasibility, this report focuses on 4 specific areas:

1 The Case for Nutrition and Maternal and Child Health in Nigeria

In the 10 priority countries addressed by the GSMA, Nigeria has the highest incidence in key indicators in maternal and child mortality, as well as malnutrition.

Government and international interest is high. The majority of programmes and indicators in national-level health planning documents are fully aligned to these issues and 8 out of 12 targets in the National Strategic Health Development Plan are aligned to maternal and child health and nutrition.

The areas of greatest need are in the northern part of Nigeria, which bears 3 to 4 times the burden of maternal and child mortality.

2 The Opportunity for mHealth to Support Nutrition and Maternal and Child Health

mHealth has been identified as a critical ICT strategy to reach the rural poor, in addressing maternal and child health and nutrition issues, as use cases align well with specific programme indicators in the National Strategic Health Development Plan (NSHDP) 2010-2015.

Up to 95% of health spend is out-of-pocket, supporting the case for a B2C (business to consumer) market in mHealth.

Health agencies at both global and national levels have demonstrated a willingness to fund mHealth, with a significant amount of funding being earmarked, indicating a large potential B2B (business to business) market.

There is an addressable market of up to 4.4 million pregnant women and new mothers for text-based mHealth services. This number can increase to 18.8 million if IVR technologies and phone sharing are taken into account.

3 The Readiness of the Players in Nigeria to Support mHealth

Out of the 45 mHealth services currently tracked in Nigeria by the GSMA, which are both commercial and NGO-led, 18 services already target maternal and child health and nutrition, 12 of which have a demand generation, registration and data surveillance component.

Support from programmes such as SURE-P MCH assist in creating incentives for mHealth adoption, while activities promoting integration with DHIS2 foster an environment for increasing convergence in data standards.

Interest from the mobile sector is high, from both commercial aggregators as well as mobile operators, some of whom, as part of the GSMA's engagement process, have signed up to common short codes and common discounted pricing regimes as a means of improving access.

4 The Potential for mHealth Partnerships

Each stakeholder has articulated challenges around the delivery of mHealth. However, there is scope for stakeholders in both public and private sector to support each other to address these challenges.

Since November 2013, the GSMA has brokered eight partnerships between the mobile and health sectors, by convening players from both sides and facilitating the understanding of each others' positions to leverage strengths.

These unprecedented partnerships have already given the health players access to common short codes and attractive business models, while mobile players benefit from the credibility and implementation experience of the health players.

The feasibility for mHealth to address nutrition and maternal and child health issues in Nigeria is high, with a large target population driving overall attractiveness and impact for both the mobile and health sectors.

The Case for Nutrition and Maternal and Child Health in Nigeria

Maternal Mortality
per 100,000 births
2010
630

Infant Mortality
per 1,000 births
2012
78

Child Mortality <5
per 1,000 births
2012
124

Children aged <5 stunted
2011
36%

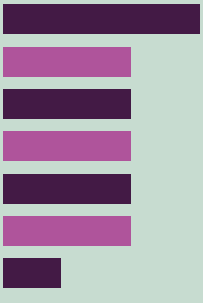
Causes of child mortality

53%
Malnutrition

26% Neonatal
24% Malaria
20% Pneumonia
16% Diarrhea
6% Measles
1% Other

Causes for maternal mortality

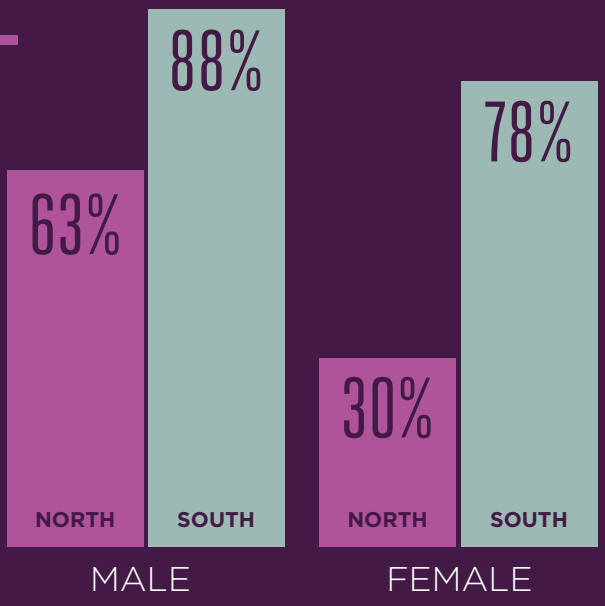
23%
Haemorrhage



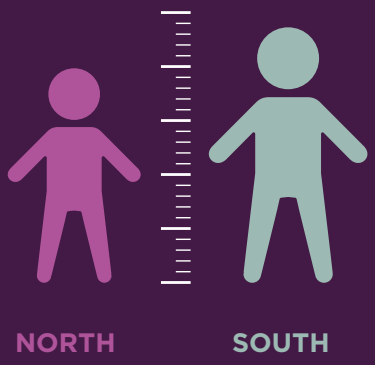
17% Infection
11% Toxemia/Eclampsia
11% Unsafe Abortion
11% Obstructed Labour
11% Malaria
11% Anaemia
5% Others

Literacy Rates

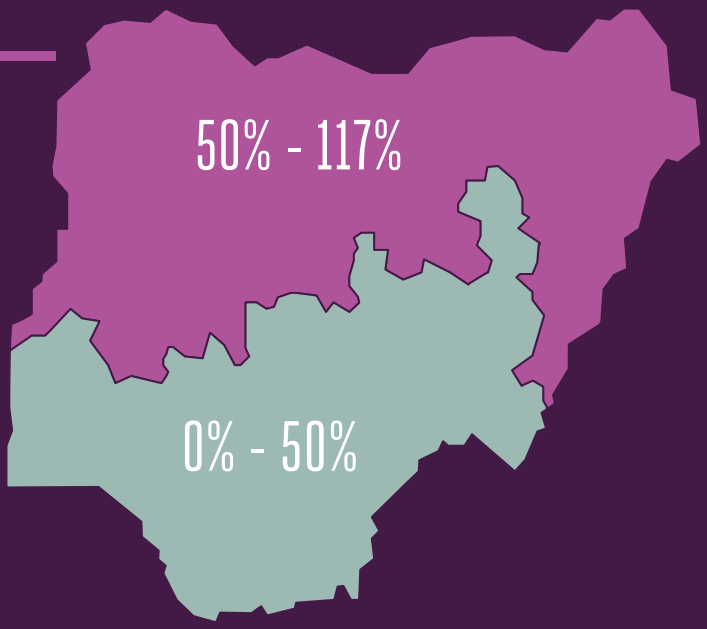
Lower literacy rates are found in the northern regions of Nigeria



Stunting Incidence

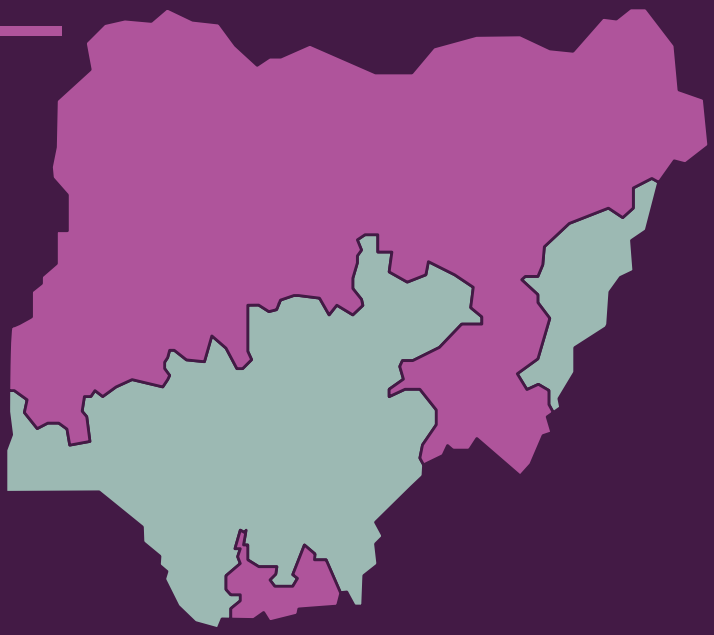


Northern Nigeria has a higher incidence of stunting



Nutrition

Key areas in need of child nutrition are the north and central regions of Nigeria.



The Case for Nutrition and Maternal and Child Health in Nigeria

Key Observations

There is a strong case for addressing maternal and child health and nutrition in Nigeria.

- Nigeria has the highest maternal and child mortality incidence among the 10 GSMA priority countries. Malnutrition is also one of the country's principal health concerns.
- Government and international interest is high, with the majority of national level policies and programmes' indicators aligned to these issues.
- The country's northern regions need the most attention, suffering three to four times the health burden when compared to other regions.

	Value	Rank*
Maternal mortality / 100,000 births (2010)	630	#1
Infant mortality / 1,000 births (2012)	78	#1
Child mortality <5 / 1000 births (2012)	124	#1
Children aged <5 stunted** (2011)	36%	#7
Mothers underweight (BMI <18.5kg/m2)	15%	n/a

* For the purpose of enabling a ranking of the 10 GSMA priority countries, a data source other than the most recent national source has been used.

** Stunting levels have fallen from 41% in 2008.

Figure 1 Source: WHO statistics / UNICEF 2009.

Alignment of National Strategic Health Development Plan to Maternal and Child Health

8 out of the 12 targets included in the NSHDP are aligned to maternal and child health and nutrition:

1. Reduce infant and under-five mortality from present levels.
2. Increase percentage of children, aged 12-23 months, who are fully immunized, by at least 25% annually and to have attained 80%.
3. Reduce maternal mortality ratio by a third from present level.
4. Decrease underweight prevalence, in children under-five, to 18%.
5. Increase, by at least 10% annually (from present level of 37%), the proportion of births attended to by skilled health workers, to reach 80% nationally.
6. Increase, by at least 10% annually, the percentage of pregnant women who attend four antenatal care visits.
7. Achieve universal access to reproductive health.
8. Halt and begin to reverse the spread of HIV/AIDS, by 2015.

Source: NSHDP (2010)

Key NSHDP Indicators and Targets

S/N	Indicator	Baseline	Targets		
			2011	2013	2015
1	Life expectancy at birth	47 years	55 years	63 years	70 years
2	Under five mortality rate	157/1000 LBs (NDHS, 2008)	130/1000 LBs	103/1000 LBs	75/1000 LBs
3	Infant mortality rate	75 (NDHS, 2008)	60/1000 LBs	45/1000 LBs	30/1000 LBs
4	Proportion of 1 year old immunized against measles	41.4 (NDHS, 2008)	60%	80%	95%
5	Prevalence of children under five years of age who are underweight	27.1 (NDHS, 2008)	24%	20%	17,90%
6	Percentage of children under 5 sleeping under insecticide-treated bed nets	5.5 (NDHS, 2008)	24%	42%	60%
7	Maternal mortality ratio	545/100,000 (NDHS, 2008)	409/100,000 LBs	273/100,000 LBs	136/100,000 LBs
8	Adolescents birth rates	126 per 1000	114/r 1000	102/1000	90/1000
9	HIV prevalence among population aged 15-24 years	4.2% (ANC Sentinel Survey)	3,2%	2,1%	1%

Figure 2 Source: NSHDP (2010)

Priority areas in Nutrition and Maternal and Child Health

Messaging

Messaging on nutrition and effective pre- and post-natal care will support efforts to reduce the causes of maternal and child mortality.

CAUSES OF CHILD MORTALITY

- 53% Malnutrition
- 26% Neonatal
- 24% Malaria
- 20% Pneumonia
- 16% Diarrhea
- 6% Measles
- 1% Other

CAUSES OF MATERNAL MORTALITY

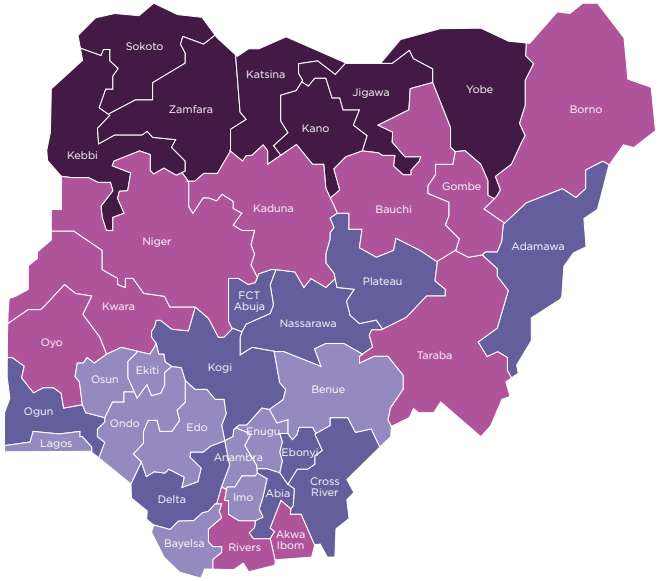
- 23% Haemorrhage
- 17% Infection
- 11% Toxemia/Eclampsia
- 11% Unsafe Abortion
- 11% Obstructed Labour
- 11% Malaria
- 11% Anaemia
- 5% Others

Figure 3 Source: FMOH statistics, 2010

Geographical

Key areas in need of intervention on child under-nutrition are the north and central regions for Nigeria.

Percentage Of Children Who Are Underweight



Moderate & Severe Stunting HFA % (<-2 & <-3SD)

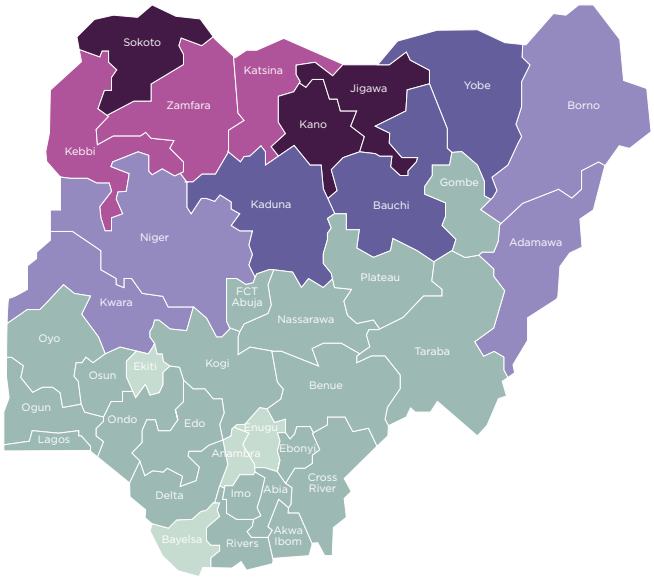


Figure 4 Source: FMOH statistics, 2010

The north bears the greatest burden of maternal and child morbidity and mortality in Nigeria. In fact, significant disparities exist between northern Nigeria and the rest of the country.

Lower literacy, women receiving ANC, and DPT3 coverage

Higher incidence of stunting, wasting, diarrhea and malaria

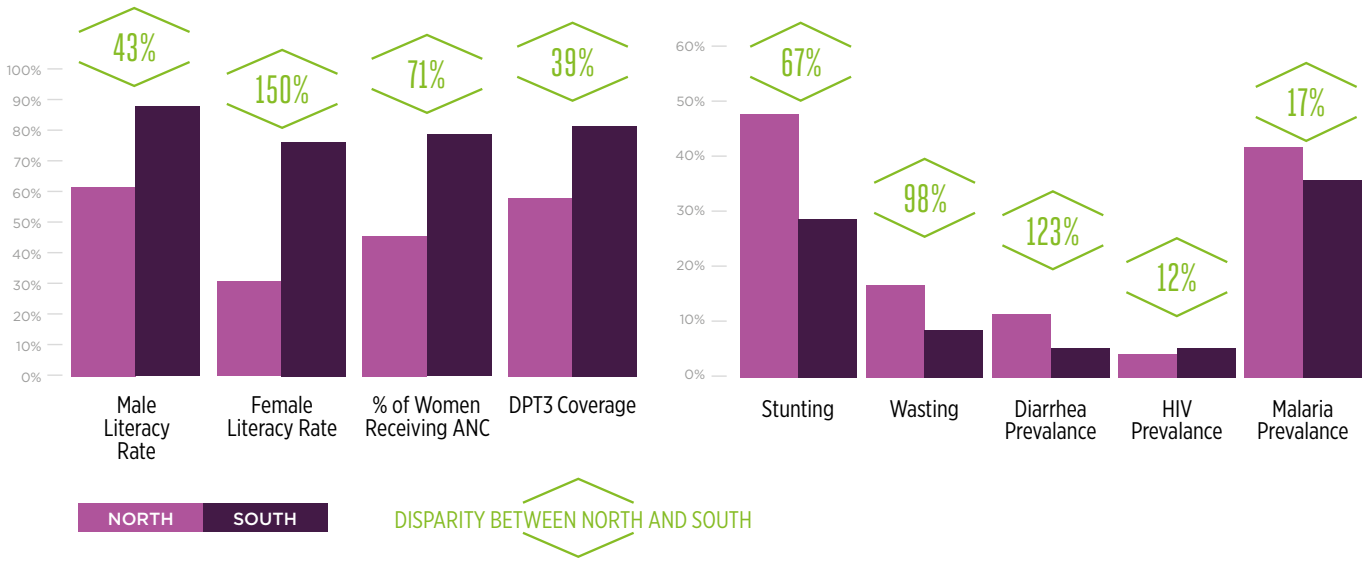
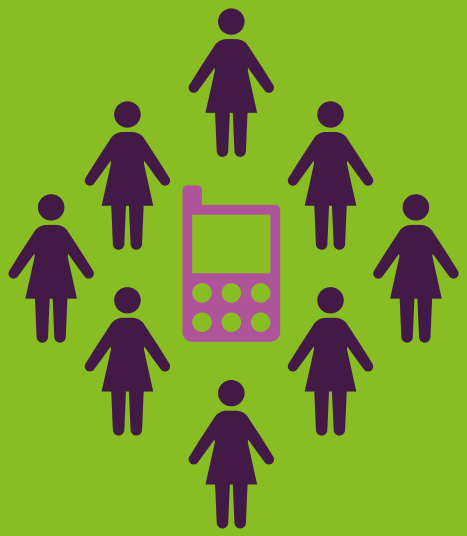


Figure 5 Source : NDHS 2008; UNGASS 2011; US Embassy in Nigeria, 2010; 2010 NPHCDA Survey

The Opportunity for mHealth to Support Nutrition and Maternal and Child Health

Mobile Access



High incidence of phone sharing means access to mobile phones is higher than mobile market penetration. There is a significant potential market of future and new mothers in Nigeria.

Mobile phone access for ICT

mHealth Product Concepts

Demand Generation

Stage based messages that pregnant women and caring mothers could subscribe to on:

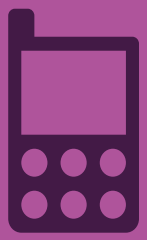
- Pregnancy updates,
- Pregnancy health advice
- Delivery advice
- Breastfeeding advice
- Tips on immunisation
- Access to consultants for immediate support and info
- Nutrition tips: what to eat and drink and other key nutrition messages

Registration

- Pregnant women and mothers with U-5 yr child/children are encouraged to register at health facilities by CHW/CHEWs who confirms the pregnancy and encourages ANC attendance
- Mothers of children requiring immunisation are also identified and registered
- Incentivisation by paying successfully registered and ANC compliant mothers and immunisation compliant periodically via CCT

Distribution of ownership and access to ICT

RADIO
52.3%
Access Only
30.6%
Owned



MOBILE PHONE
33.5%
Access Only
30.4%
Owned

TV
31.5%
Access Only
13.3%
Owned

PC
3.6%
Access Only
0.9%
Owned

The Opportunity in 2015

Total Addressable Market
9,4M

Total Addressable Market
18,8M

The Opportunity in 2020

Total Addressable Market
11,8M

Total Addressable Market
23,6M

The Opportunity for mHealth to Support Nutrition and Maternal and Child Health

Key Observations

mHealth has been identified as having clear potential to support nutrition and maternal and child health, both in terms of the reach and the relative affordability of mobile access.

- mHealth is a critical component of ICT strategy to reach the rural poor.
- mHealth use cases align well under specific programme indicators in the NSHDP 2010-2015.
- A number of national and global organizations have committed funding for mHealth, representing a significant B2B (business to business) opportunity for players.
- The high out-of-pocket spend on health (up to 95%) indicates readiness for a B2C (business to consumer) mHealth model.
- mHealth can reach out to as many as 4.4 million pregnant women and new mothers on pure text-based services. The current deployment of IVR technologies, as well as the potential for phone access sharing, means that the reach can extend to 18.8 million pregnant women and new mothers.

Alignment to the National Plan

mHealth aligns well to a number of programme aims within the National Plan.

mHealth Use Cases	Alignment to specific NSHDP (2010-15) Goals
Monitoring and providing real time updates on stock-outs and drug authentication e.g. SMS4Life	2.2.2 To ensure availability of drugs and equipment at all levels
Targeted, stage-based, messaging for behaviour change communication e.g. MAMA in SA	2.4.1 To create effective demand for services
Mobile job aids, quizzes and training which can be updated on the fly e.g. Mobile Kunji in India	3.4.2 To strengthen health workforce training capacity and output based on service demand
Mobile-enabled registration and data collection for community health workers e.g. D-Tree	5.1.6 To improve coverage of data collection
Supervisory (and incentive) systems providing real-time supervision and monitoring e.g. CommCare	5.1.7 To ensure supportive supervision of data collection at all levels
mHealth application direct linkages to DHIS2 systems e.g. CommCare	5.3.2 To strengthen the Disease Surveillance System
Error-checking and protocols built into data collection applications on mobile e.g. CommCare	5.4.2 To strengthen data transmission

Figure 6

Alignment to Global and National Programmes in Nigeria

The role of mHealth has also been articulated in a number of global and national programmes in Nigeria, with a significant amount of funding being committed from these agencies on mHealth and related interventions.

Programme	Description	Aims	Role of mHealth
Every Woman, Every Child	Global movement with partners in both private and public sector with more than $40b committed	To save 16m lives of women and children by 2015 through reductions in unwanted pregnancies, stunting in children and pneumonia	mHealth plays critical component in delivering 2 of the 13 Life-Saving Commodities in MCH
Saving One Million Lives	National programme launched by President Goodluck Jonathan, chaired by the Federal Ministry of Health and Ministry of Finance to address maternal and child health and achievement of MDGs by 2015	To save 1m lives of women and children through improving access to medicines, immunization, child nutrtition, and innovations in technology by 2015	mHealth identified as a critical ICT enabler in behavior change communication and registration / data surveillance
Subsidy Re-investment and Empowerment Programme (SURE-P) MCH	Cross-ministry programme aimed at re-investing fuel subsidies into programmes of social impact, including healthcare	To contribute to the reduction of maternal and newborn morbidity and mortality and increase maternal access to health services through two forms of intervention	mHealth identified as channel for managing conditional cash transfers for health workers
Private Sector Health Alliance of Nigeria	Private Sector collaboration between top business leaders in Nigeria aimed at creating innovation, scale and partnerships in order to impact healthcare outcomes in Nigeria	To build a world class private sector led coalition that accelerates Nigeriaâ€™s progress in achieving Millennium Development Goals 4, 5 and 6 by 2015 and beyond"	mHealth and partnerships with mobile operators identified as crucial enablers for innovation and impact

Figure 7

Alignment to Saving One Million Lives (SOML)

On October 16th 2013, the Nigerian President Goodluck Ebele Jonathan launched Saving One Million Lives, a comprehensive initiative to scale up access to essential primary health services and commodities for Nigeria's women and children. The initiative builds on growing international momentum behind child and maternal survival, in support of Every Woman Every Child; the child survival call to action in Washington, DC and the recently concluded Abuja conference on essential commodities.

The initiative is focused on evidence-based, cost effective interventions that are proven and which address the leading causes of morbidity and mortality. The initiative comprises several components, which will contribute to saving one million lives:

- improving maternal, newborn and child health, through delivering an integrated package of interventions at thousands of primary health care clinics with referral links, including access to a skilled healthcare provider
- improving routine immunization coverage and eradicating poliomyelitis
- prevention of mother to child transmission of HIV, through increased access to quality HIV testing and counselling to mothers, treatment of infected mothers and exploring the feasibility of universal access to HIV treatment for all those infected
- scaling up access to essential medicines
- malaria control, through an increase in the utilization of bed nets and effective antimalarial medicines
- improving child nutrition
- strengthening logistics and supply chain management
- promoting innovation and use of technology

Underlying the commitment made by the Nigerian government, the following principles will govern the use of mobile and other ICTs:

Empower patients and clients

Empower health workers

Empower the health system

Provide a platform for shared accountability, inclusion, equity and consideration for links to mobile financial services through conditional cash transfers

The activities of the Pan-African mHealth initiative in Nigeria are therefore aligned with the component that exploits innovation and the use of technology to create positive health outcomes.

Alignment to the Millennium Development Goals (MDG) Harmonisation Plan of the Federal Ministry of Health

mHealth activities have also been mapped to the MDG Harmonisation Plan.

	FOCUS AREA	OBJECTIVES	MHEALTH ACTIVITIES THAT MAPS TO THE OBJECTIVE
1	Maximising RMNCH Week and other existing campaigns	1. Enhance the quality of MNCH weeks 2. Increase coverage of the MNCH weeks 3. Increase number of essential commodities provided through MNCH weeks 4. Improve data collection and analysis from MNCH weeks	1. Increase awareness using mobile and other campaign platforms 2. Promote complementary feeding and continued breastfeeding using mobile info 3. Provide timely data collection tools (mobile reporting into DHIS2) 4. Data analysis through DHIS2 to support quick turnaround on data 5. Regular feedback, using mobile, from evaluation and periodic review to inform decision making
2	Essential medicines scale up through public-private partnership, with emphasis on malaria, pneumonia and diarrhoeal disease	1. Policy and regulatory improvements 2. Generate demand for commodities 3. Increase availability and affordability	1. Reinforce zinc/LO-ORS as first line treatment for childhood diarrhoea 2. Push messages on mobile to generate demand 3. Push training materials on mobile to align with the iCCM guideline 4. Develop targeted messages to increase awareness and demand for SMC
3	Maximise utilisation of existing PHC service	1. Increase skilled birth attendance 2. Increase capacity of HCWs to provide essential delivery , newborn and child health services	1. Recruit and deploy additional skilled birth attendants to cover additional facilities 2. Promote the adoption of task shifting for HCWs using mobile to provide treatment algorithms 3. Training aid on MNCH interventions for HCWs using mobile 4. Trainings and refreshers training
4	Maximise impact of Community based programmes	1. Develop context specific strategies to increase health seeking behaviour in the communities 2. Strengthen and operationalize community based structures 3. Demand creation for MNCH service 4. Strengthen community outreaches through linkage with primary health care facilities	1. Conduct an assessment of health seeking behaviours among pregnant women and mothers in the country and identify key challenges and barriers to skilled birth attendance at the community level 2. Leverage resources to implement strategy at scale 3. Promote the use of GSM services (communication) between clients and skilled birth attendants on Emergency obstetrics and Newborn care
5	Accelerate access to life saving commodities	1. Policy and regulatory improvements 2. Increase capacity of HCWs on RMNCH interventions 3. Ensure availability of essential commodities for the management of PPH	1. Rapidly implement LIMS for essential maternal commodities to track usage of commodities at facility level 2. Strengthen logistic systems for stocking and distributing of essential drugs etc
6	Health systems strengthening	1. Increase facility performance on delivery of essential services 2. Enhance cross cutting health systems development and coordination 3. Increase data utilisation and accountability 4. Provide support for Human resource for health	1. Scale up use of the RMNCH scorecard to all States (Electronic scorecard alongside) 2. Establish baseline for data for core indicators to track health MDGs using data sources-NDHIS 2013, NHIMS, SMART survey 3. Conduct periodic health facility surveys to collect data on service supervision and utilisation 4. Rapidly scale up DHIS2 platform to all LGAs (remaining 360 LGAs) 5. Ensure availability of data collection tools for NHMIS at all facilities

Figure 8

How Mobile-Enabled Demand Generation and Registration Maps to Maternal and Child Health

	PRODUCT CONCEPT AREA	DESCRIPTION	AIM	ORGANISATIONS AND WHERE THEY COULD FIT IN	EVIDENCE
1	DEMAND GENERATION	Consumer messaging on Health/Nutrition education & promotion, prevention and participation subscribed to via SMS service, IVR or App	• To improve health seeking behaviours; • ImproveÂ Â health and nutrition knowledge, attitude, behaviour and practices of pregnant women and mothers of U-5yr children • Create awareness about and demand for the project/product • Achieve subscription by and ANC by a million pregnant women	Stage based messages that pregnant women and caring mothers could subscribe to on: • Pregnancy updates, • pregnancy health advice • delivery advice • breastfeeding advice • tips on immunisation • access to consultants for immediate support and info • nutrition tips: what to eat and drink and other key nutrition messages	Stage based messages on: • HIV education and prevention; • testing in pregnancy, • care for HIV exposed infants • centres for testing and support • emotional and psychosocial supports • Reminders on ARVs for pregnant women • Reminders on ARVs for HIV exposed infants
2	REGISTRATION	Identify and track pregnant women and mothers with u-5yr children and have them registered by CHW at health facilities	• Aim is to improve ANC attendance • Encourage pregnant women to register for ANC at health facility where pregnancy is confirmed • Identify women in communities who are not registered for ANC and Immunisation and motivate participation through incentives via CCT	• Pregnant women and mothers with U-5 yr child/children are encouraged to register at health facilities by CHW/CHEWs who confirms the pregnancy and encourages ANC attendance • Mothers of children requiring immunisation are also identified and registered • Incentivisation by paying successfully registered and ANC compliant mothers and immunisation compliant periodically via CCT	• Registration of HIV+ mothers and women • Referral to EID Sites • Dry blood sample collection and sent to EID Labs • Tracking of sample via mobile • Test results sent back to health facility via mobile from Lab • Result notifications sent to mothers via mobile

Figure 9

The Reach of mHealth

While access to phones and literacy levels are issues to be taken into consideration, there is a significant potential market of future and new mothers in Nigeria.

	VALUE	RANK*	
Population, 2012	168.8m	#1	Large base target population
No. of pregnant mothers, 2012	5.7m	#1	
No. of mothers with children < 5y, 2012	17.7m	#1	
Unique mobile subscribers penetration 2013 (5-y growth)	29.9% (9%)	#7	Relatively low, but growing, access to mobile
Geographical coverage, 2009	34%	#7	
% Rural, 2012	50%	#8	Rural and low literacy rates indicate an IVR strategy is key
Literacy rate >15y Overall (Women), 2008	51% (41%)	#9	

*Rank relates to 10 GSMA focus countries, within the Pan-African mHealth Initiative, indicated on page 5 of this report.
Figure 10 Source: WHO, World Bank, Mobile Development Intelligence (MDI), and GSMA estimates

The size of the reachable market is larger, because of the fact that access to mobile phones is higher than mobile market penetration, due to phone sharing.

Total access to ICT by device in Nigeria, 2011 (%)

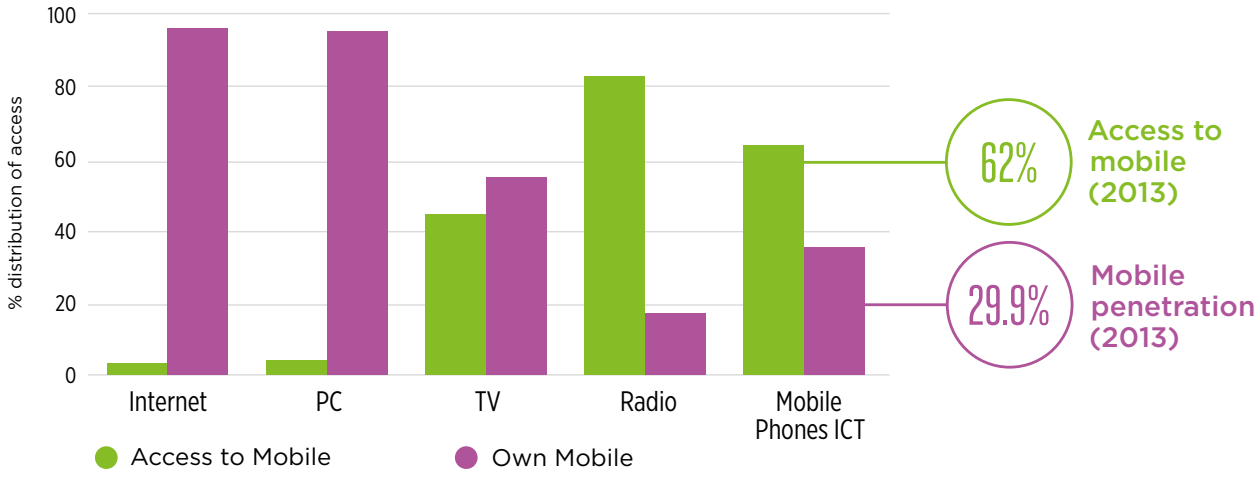


Figure 11 Source: Survey on Access to ICT, National Bureau of Statistics, Nigeria, 2011

Distribution of ownership and access to ICT, % (2011)

	Radio	TV	Mobile Phone	PC	Internet
Access to Mobile	52.3	31.5	33.5	3.6	3.1
Own Mobile	30.6	13.3	30.4	0.9	0.5

Figure 12 Source: Survey on Access to ICT, National Bureau of Statistics, Nigeria, 2011

There is a significant disparity in both mobile phone access and penetration between urban and rural regions.

Distribution of access to mobile phones (%)

State	Owned	Access Only	Total Access
Anambra	56,0	39,1	95,1
Osun	58,1	33,8	91,9
Kogi	50,0	37,6	87,6
Ogun	47,3	39,9	87,1
Niger	37,3	48,9	86,2
Lagos	76,4	9,2	85,6
Ebonyi	22,8	59,2	82,0
Imo	46,3	35,5	81,9
Oyo	32,2	49,3	81,5
Edo	44,1	34,4	78,5
Kwara	32,2	45,7	78,0
Ekiti	47,7	30,2	77,9
Delta	48,2	28,6	76,8
Rivers	52,1	23,7	75,8
Jigaea	17,1	58,3	75,4
Ondo	35,7	39,3	75,0
Nasarawa	26,4	48,3	74,8
FCT Abuja	47,3	24,5	71,8
Enugu	38,3	32,9	71,2
Abia	45,3	25,3	70,6

State	Owned	Access Only	Total Access
Akwa Ibom	37,4	30,6	68,1
Plateau	32,0	35,2	67,2
Kebbi	11,7	53,3	65,0
Bayelsa	30,3	33,6	64,0
Gombe	17,4	44,8	62,3
Benue	26,1	28,9	55,0
Kaduna	19,4	35,4	54,8
Cross River	23,4	30,9	54,3
Borno	11,4	42,7	54,1
Yobe	15,5	36,6	51,8
Adamawa	17,7	28,7	46,5
Bauchi	12,3	30,5	42,8
Katsina	10,4	29,3	39,7
Kano	12,4	23,8	36,2
Zamfara	12,3	23,8	36,1
Sokoto	8,9	24,2	33,1
Taraba	15,1	18,0	33,1
URBAN	**52,9**	**31,2**	**84,0**
RURAL	**24,4**	**34,1**	**58,5**
National	**30,4**	**33,5**	**63,9**

Figure 13 Source: Survey on Access to ICT, National Bureau of Statistics, Nigeria, 2011

Paying for mHealth

High out-of-pocket spend on healthcare indicates potential for consumer mHealth sustainability, but the extent of inequalities and affordability for the rural poor will need to be investigated.

	VALUE	RANK*
Income per capita (USD), 2012	1555	#2
Health expenditure per capita (USD), 2011	80	#2
% below poverty line, 2010	46%	#7
% out-of-pocket spend, 2012	96%	#1
% donor funding, 2012	5%	#10
% government funding, 2012	31%	#8
Spend on mobile USD (ARPU / month), 2012	16	#1
% of income on mobile (ARPU / GDP), 2012	12%	#5

Relatively high spend on healthcare expenditure (although with significant inequalities)

Propensity to spend out of pocket on healthcare and potential for consumer business model, low reliance on donor funding

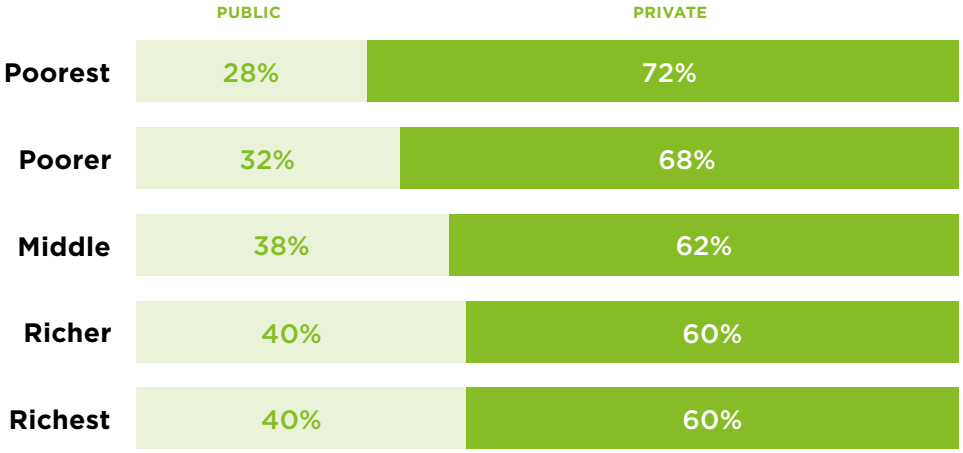
Relatively high spend on mobile, but medium compared to other countries as a proportion of income

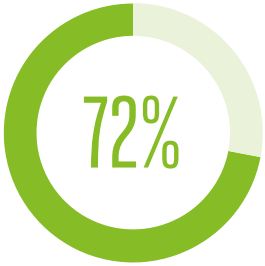
*Rank relates to 10 GSMA focus countries, within the Pan-African mHealth Initiative, indicated on page 5 of this report.

Figure 14 Source: WHO, World Bank, GSMA Wireless Intelligence statistics

Despite having the lowest income, the poorest segment has the least access to public healthcare funding.

Source of healthcare delivery, by income quintile





Over 70% of care for the poorest Nigerians is delivered in the private sector.

Figure 15 Source: NDHS 2008

The Opportunity in 2015

SMS based services can reach up to 4.4M pregnant women and new mothers, but have the potential to reach up to 18.8M if IVR-based services and phone sharing are taken into account.

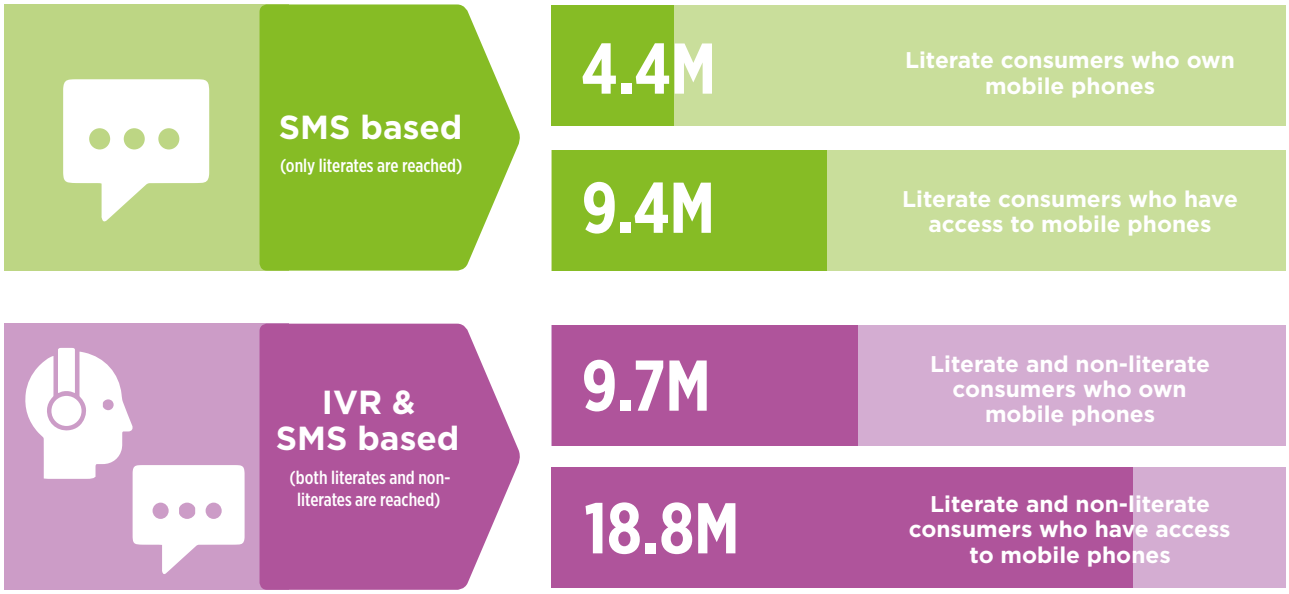


Figure 16

The Opportunity in 2020

The potential size of the addressable market will be 23.6M in 2020, growing by 25% between 2015 and 2020.

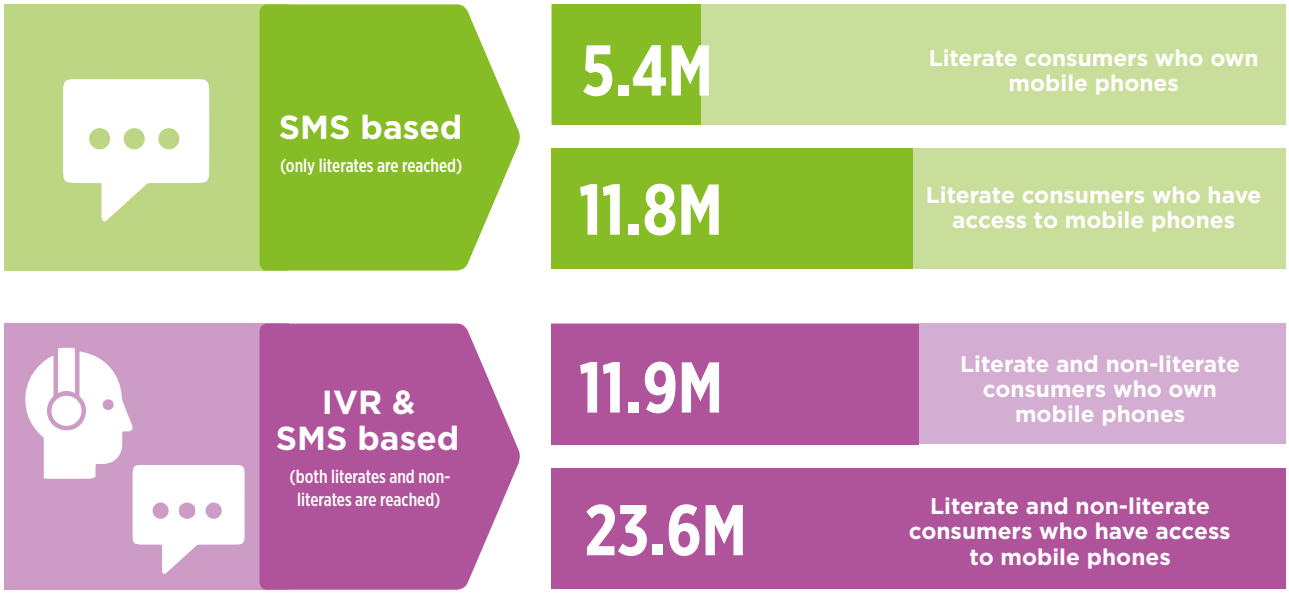


Figure 17

The readiness of the players in Nigeria to support mHealth

Key Players in the mHealth Value Chain

There is a relatively complete set of mHealth players in Nigeria, which is led by operators and commercial aggregators, as well as NGOs.

	Content Providers	mHealth Service Providers	Content Aggregators	Mobile Operators
Key Value	Create original, tagged, health content which is validated with national and international standards	Develop / implement mHealth solutions for messaging, data collection, distribution and management	Adapt, package content, work with multiple operators and distribution platforms, while tracking usage across different platforms	Provide the mobile connectivity for distributing content and data collection
Examples in Nigeria	• MAMA • Helen Keller International • Vas2Nets • Starfish Mobile	• Pathfinder International Nigeria • StarFish • VAS2Nets • Etisalat • SURE-P MCH • Millennium Promise • Wellbeing Foundation Africa • Grameen Foundation • Clinton Health Access Initiative • Management Sciences for Health	• VAS2Nets • StarFish Mobile • Verse	• MTN • AirTel • Etisalat • Glo • Visafone
Business Model	Open source Licensing	Subscription Freemium *(for consumer services)* Government / donor grant *(for registration, data collection services)*	Revenue share with operator	Voice, data, SMS revenue Revenue share with aggregator
Key Challenge	Difficult to generate revenue from health content as a stand-alone offering	Adoption relatively untested at scale for consumer services Government / donor funded registration services may not be sustainable in the long run	Need to show short term commercial return and demonstrate ROI	Need to show short term commercial return and demonstrate ROI

Figure 18

mHealth Service Providers

Key Observations

Programmes that address financing and incentives, as well as aggregating data on the back-end, need to be considered to maximize the success of mHealth.

- Currently, the majority of mHealth services are focused primarily on maternal and child health and are mostly donor funded.
- Multiple solutions are being piloted across Nigeria, involving similar use-cases of mobile-enabled registration, data collection and monitoring, followed by targeted messaging and appointment reminders.
- Mobile operators and commercial players implement similar mHealth services, but they are aimed at urban mothers with a higher buying power.

mHealth Tracker

The GSMA mHealth Tracker is a customised tool which collates mobile health products and services around the globe, tracking solutions in both planning phase and those which have been commercially deployed.

Out of the 45 donor funded, commercial and NGO-led mHealth services currently tracked in Nigeria by the GSMA, 18 services already target maternal and child health and nutrition, 13 of which have a demand generation, registration and data surveillance component.

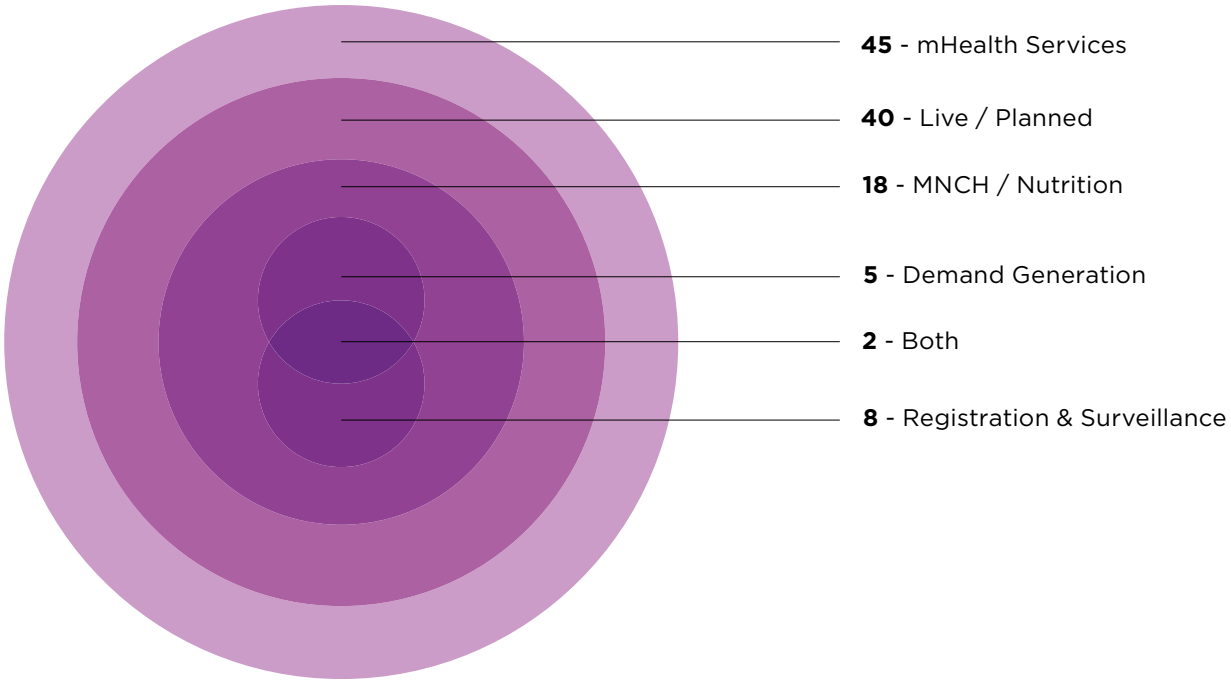


Figure 19

NGO-Led Case Study: m4change

Pathfinder INTERNATIONAL
a global leader in reproductive health

PROFILE

mHealth Use Case: Use of mobile job aid to register and track mothers on antenatal care (ANC) attendance, with SMS reminders (health system strengthening, health worker empowerment, diagnostics)

Delivery Channels: Voice, SMS, mobile app

Health Focus: Maternal and child health

Target Users: CHWs, pregnant women and new mothers

Geographical Focus: 20 primary healthcare centres (PHCs) in Abuja and Nasarawa

VALUE PROPOSITION

Source Of Content: Developed by Pathfinder International with support from the National Primary Health Care Development Agency (NPHCDA) and the Abuja Municipal Area Council.

Degree Of Localization: Translated into Hausa, field tested on local consumers

Implementation Experience: Since January 2012, has experience in overseas markets

Partner Coverage: SURE-P MCH (Conditional Cash Transfer (CCT)), NPHCDA (standards and protocols), Abuja Municipal Area Council (owners of local government area (LGA)), DiMagi (technology platform), Etisalat (mobile operator)

Funding: Pathfinder International, IWG, Norwegian government in the next 2 years

Business Model: Freemium model, donor funded (project cost analysis to be completed by October 2014)

Success To Date: Real-time reporting, pre-post interview of health workers indicating high value attributed to m4change service, increased health facility visits

Reach: 11,500 pregnant women, 152 community health workers were trained in this project

Registration

- A Mother is registered by a CHW at a health facility
- The CHW captures the mothers data into digital forms on an application on her feature phone/ tablet

Data Collection

There are a number of digital forms which are updated throughout this service:

- Basic client follow-up form
- Follow-up form for referrals to secondary HCF
- Delivery form
- Post natal care and immunization tracking

Reminders

- 3 sets of SMS reminders are sent out:
  - Missed ANC appointment (to mother)
  - Estimated Date of Delivery (EDD) within 2 weeks (to mother)
  - Missed EDD by2 weeks (to CHW)
- Extending reminder messaging to Immunization tracking - require funding and local messaging partner

Client Follow-Up (& Counselling)

CHW uses her mobile phone to follow-up on a mother who has missed an ANC appointment or who has missed her EDD at the facility

Group Counselling Sessions

CHW provides group counselling to all the pregnant women who meet at the HCF (with the help of job aids)

Conditional Cash Transfer

Mobile money cash transfers made to eligible women

Birth Registration

After delivery, a new case is opened for the child (under the mother's name)

PMTCT Commodity Logistics

Tracking of PMTCT commodities (not yet implemented)

Figure 20

NGO-Led Case Study: Wellbeing Foundation Africa/MAMA

MAMA
Mobile Alliance for Maternal Action

The Wellbeing Foundation
Committed To Caring

PROFILE

mHealth Use Case: Use of mobile to deliver stage-based maternal messaging (prevention, wellness)

Delivery Channels: SMS and others TBD

Health Focus: Maternal and child health

Target Users: Pregnant women and new mothers

Geographical Focus: Nationwide

VALUE PROPOSITION

Source Of Content: MAMA (and others to be determined)

Degree Of Localization: Not localized yet. Wellbeing Foundation to act as localizing partner

Implementation Experience: Maternal and child health (Wellbeing Foundation), mHealth messaging (MAMA)

Partner Coverage: TBD

Funding: TBD

Business Model: TBD

Success To Date: In pre-launch phase

Reach: In pre-launch phase

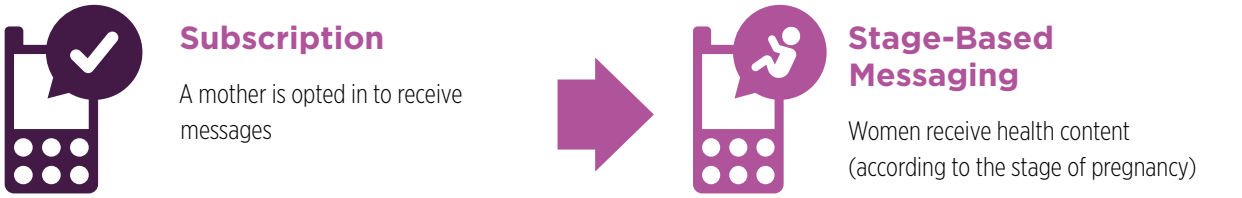


Figure 21

NGO-Led Case Study: Mentor Mothers

msh
Management Sciences for Health

PROFILE

mHealth Use Case: CHWs use app to monitor and track HIV-positive mothers and ANC visits (health system strengthening, health worker empowerment)

Delivery Channels: SMS, voice, app

Health focus: Maternal and child health

Target users: Pregnant women and new mothers

Geographical focus: Suleja in Niger State, North Central Nigeria

VALUE PROPOSITION

Source of content: MSH Nigeria

Degree of localization: MSH Nigeria is localizing the content

Implementation experience: Maternal and child health programme implementation in Nigeria

Partner coverage: Globacom

Funding: TBD

Business model: Grant-funded

Success to date: TBD

Reach: 12 mentor mothers signed up for pilot. Each mother will reach out to between 5 and 8 pregnant women

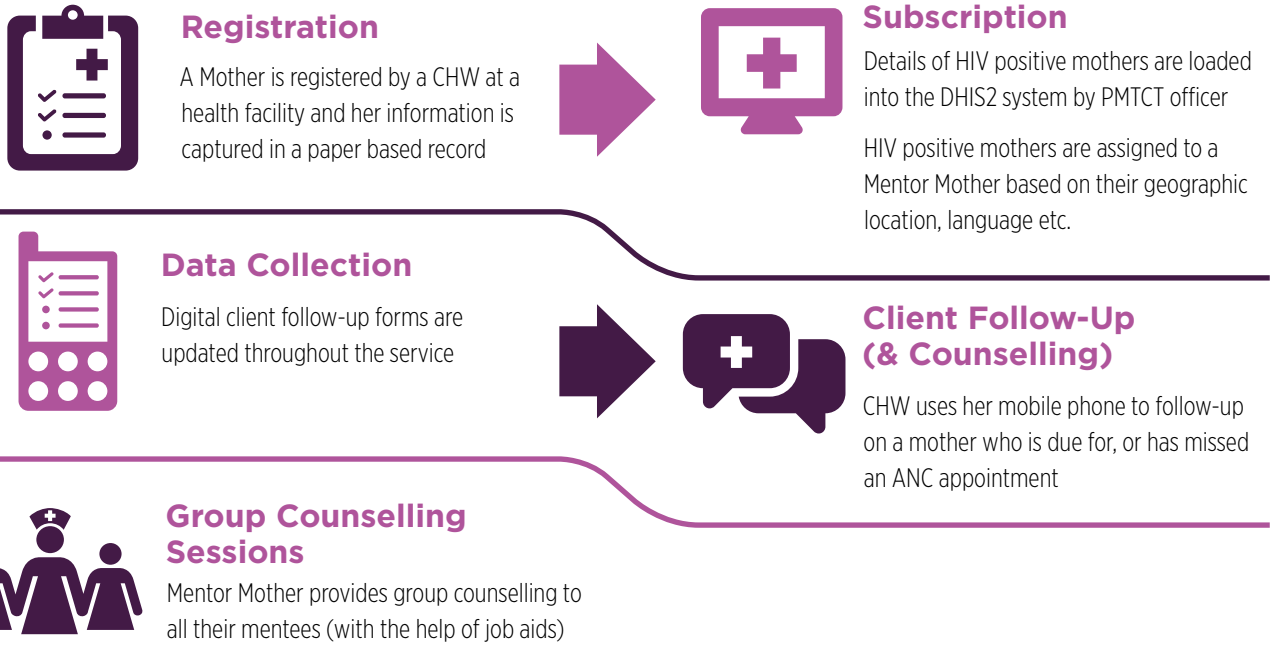


Figure 22

NGO-Led Case Study: Routine Immunization

CLINTON HEALTH ACCESS INITIATIVE

PROFILE

mHealth use case: Use of mobile job aid to monitor and track immunization with SMS alert (health system strengthening, monitoring)

Delivery channels: Mobile app

Health focus: Child health

Target users: CHWs, pregnant women and new mothers

Geographical focus: 2 LGAs, 100 facilities (details TBD)

VALUE PROPOSITION

Source of content: No forms and no content

Degree of localization: -

Implementation experience: Experience in Malawi, Zambia, Botswana, Mozambique and India

Partner coverage: None planned yet

Funding: Bill and Melinda Gates Foundation

Business Model: Grant-funded

Success to date: Pre-launch phase

Reach: Pre-launch phase

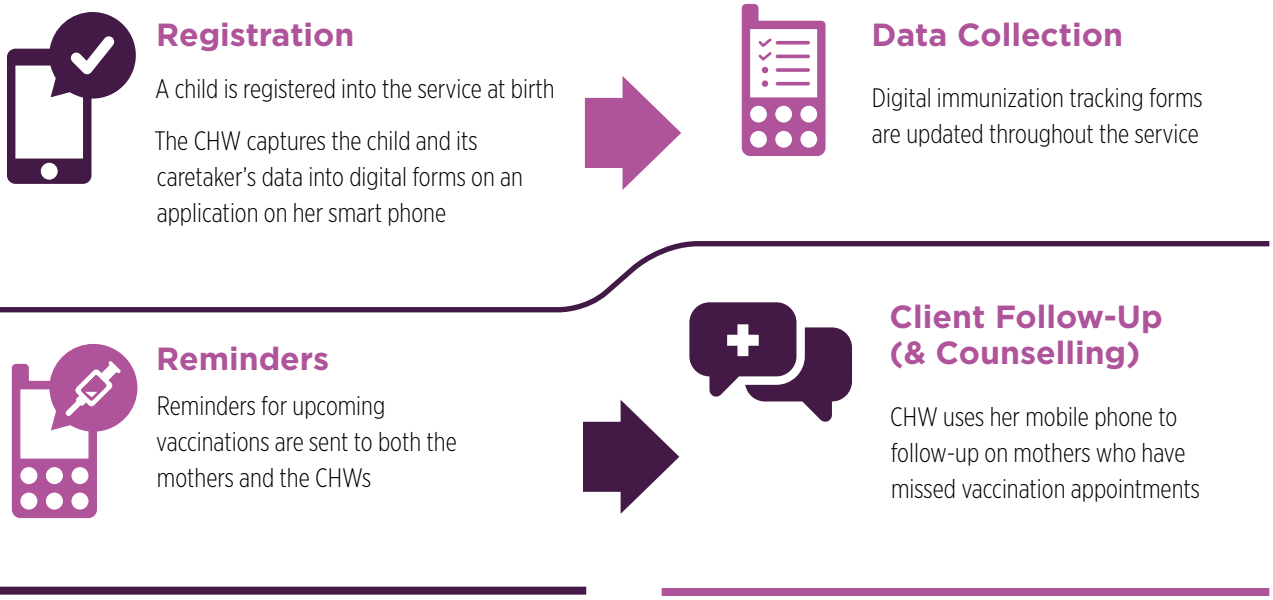


Figure 23

STEP 1 CAREGIVER PRESENTS CHILD FOR IMMUNIZATION AT FACILITY

STEP 2 DATA CAPTURE AND REGISTRATION

Data is captured using a mobile system

Children are registered in computer based system

Children are registered on updated paper based registers

STEP 3 IMMUNIZATION DELIVERY

System generates information on what vaccines child needs

Following vaccination, HCW enters vaccine code and date delivered

HCW determines vaccines to be given from any prior entries in register

Following vaccination, HCW updates register with date

STEP 4 TRACKING AND APPOINTMENT REMINDER

System generates next visit date / sends reminder to HCW to tell caretaker, and also to caregiver's phone

HCW goes through registers to determine defaulters

HCW places phone calls to caregiver or goes on home visit

Figure 24

NGO-Led Case Study: Millennium Promise

MILLENNIUM PROMISE

PROFILE

mHealth use case: CHWs use CommCare app to monitor and track mothers in terms of ANC visits and immunization (health system strengthening, health worker empowerment, monitoring)

Delivery channels: SMS, voice, app

Health focus: Maternal and child health

Target users: Pregnant women and new mothers

Geographical focus: Kaduna State

VALUE PROPOSITION

Source of content: Earth Institute at Columbia University

Degree of localization: Earth Institute to localize content

Implementation experience: Programme commenced in 2013 (other countries Ghana, Kenya, Malawi, Mali, Nigeria, Rwanda, Senegal, Tanzania, Uganda are in progress), other maternal and child health areas since 2006

Partner coverage: AirTel (in all focus countries, providing free SMS, data, voice to community health workers), Sony Ericcson (all countries)

Funding: TBD

Business model: Grant funded

Success to date: TBD

Reach: 40 CHWs, targeted 35,000

Registration

A CHW profiles households on an app on her phone

Specific cases (linked to that household) are opened for pregnant women and children under 5

Data Collection

There are a number of digital forms which are updated on the application throughout this service

Pregnant mother (ANC & Post Natal- 6 weeks)

Children under 1 year (Immunization)

Birth Registration

After delivery, a new case is opened for the child (under the same household as the mother)

Client Follow-Up (& Counselling)

CHW uses her mobile phone to follow-up on a mothers and children

Figure 25

NGO-Led Case Study: Mobile Midwife

PROFILE

mHealth use case: Registration via IVR, thereafter sending up to 170 targeted, staged-based voice messages to pregnant women and new mothers, based on MoTech platform (health system strengthening, health worker empowerment, monitoring)

Delivery channels: SMS, voice, app

Health focus: Maternal and child health

Target users: Pregnant women and new mothers

Geographical focus: Nationwide

VALUE PROPOSITION

Source of content: MoTech is the technology platform, GSMA mWomen

Degree of localization: To be localized by Grameen Foundation

Implementation experience: Direct implementation in Sub-Saharan Africa, Asia, Latin America, India and through a joint venture in India, the Middle East and North Africa. In Ghana since 2010, in 120 health facilities in two pilot districts and three replication districts, reaching approximately 25,000

Partner coverage: AirTel (connectivity, and marketing)

Business model: Subscription (freemium and premium based on socio-economic and demography)

Funding: GSMA mWomen

Success to date: Pre-launch phase

Reach: Targeted 50,000

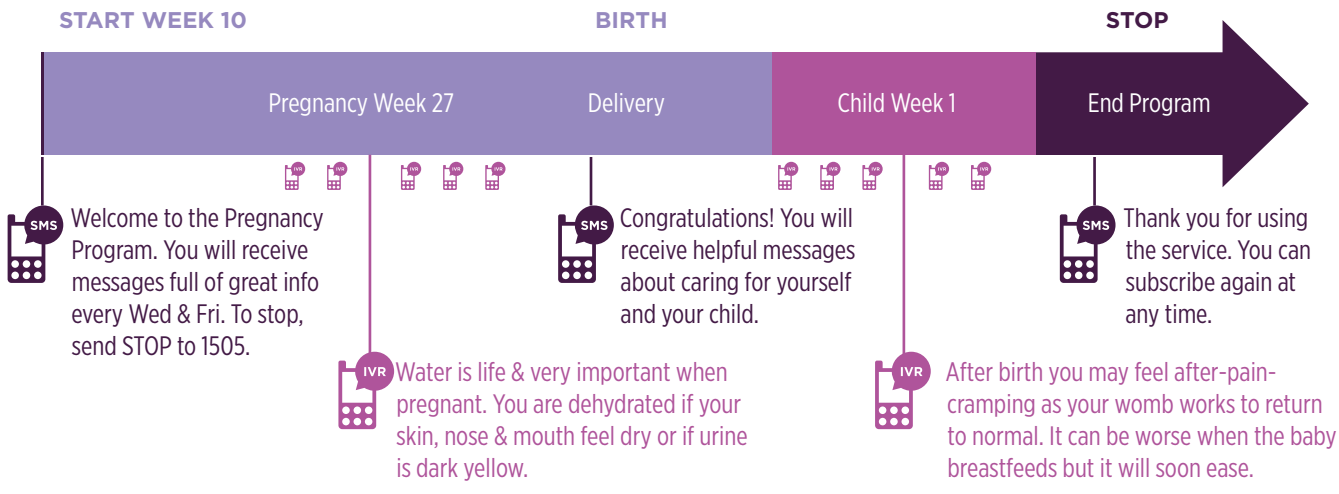


Figure 26

MNO-Led Case Study: Mobile Baby and Mobile Baby Info

PROFILE

mHealth use case: Tools for sending media for remote diagnosis, protocols for reporting danger signs, money on the phone for transportation and referral management (health systems strengthening, health worker empowerment, monitoring)

Delivery channels: SMS, voice, app

Health focus: Maternal and child health

Target users: Pregnant women and new mothers

Geographical focus: Nationwide

VALUE PROPOSITION

Source of content: Protocols developed by D-Tree in line with global standards

Degree of localization: Adapted by working with local health authorities

Implementation experience: Implementing this programme since 2011 (other countries Sri Lanka, Pakistan, Afghanistan, Egypt)

Partner coverage: Etisalat, Zantel, Qualcomm, D-Tree, WHO, CARE

Funding: Etisalat

Business model: Freemium, subscription

Success to date: Service introduction across Tanzania, Nigeria, UAE and KSA. Etisalat plans to rollout Mobile Baby across all of its operations (including Afghanistan, Pakistan, Sri Lanka, Ivory Coast, Benin, Togo, Niger, Central African Republic and Gabon)

Reach: Over 500 birth attendants and midwives have been fully trained on the application and over 20,000 pregnant women have been registered in the programme across all markets

Figure 27

Registration

The TBA (Traditional Birth Attendant) registers her community referral information directly on the Mobile Baby application. This includes her catchment area; drivers and health facility staff contact details.

Data Collection

Continual data collection along the duration of a mother's pregnancy and during the post-partem period

Through the Mobile Baby application the TBA registers mothers during their pregnancy and report to the Medical facility pregnancy status, danger signs and basic information

Monitoring

Ultrasound based remote monitoring of pregnancy evolution

Peer-to-Peer Communication

Through the application TBA continuously communicate with the doctor "on-call" on the status of delivery, symptoms and complications (if any)

Referral System

Notify facilities when a patient has been referred to a facility

Decision Support Protocols

Step by step protocol to identify and report danger signs during labour and delivery

Mobile Payments

Money on the phone to pay for emergency transportation; and Communication with referral facility indicating emergency transfer

Figure 28

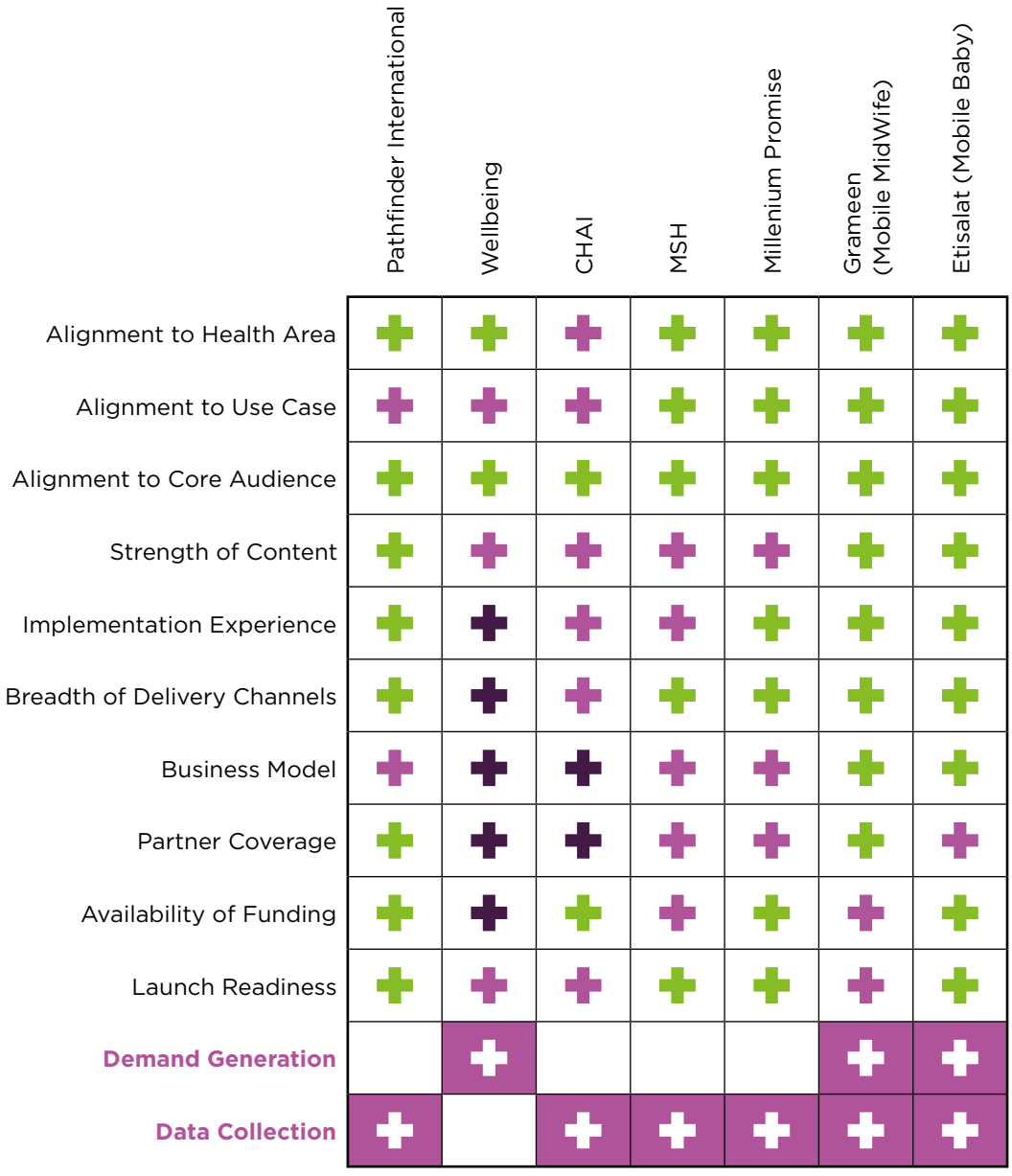
Assessment Criteria for mHealth Service Providers

	STRONG ALIGNMENT	MEDIUM ALIGNMENT	LOW ALIGNMENT (OR NOT APPLICABLE)
Alignment to Health Area	Directly impacts maternal and child health or nutrition	Indirectly impacts maternal and child health	Does not impact maternal and child health
Alignment to Use Case	Has both demand generation as well as registration / data collection use cases	Has either demand generation or registration / data collection use cases	Does not have either use case
Alignment to Core Audience	Targeted at rural, poor, pregnant women or new mothers	Targeted at general audience	Little or no alignment to core audience
Strength of Content	Content validated by ministry and tested in the field	Content is from an approved source but not formally tested or validated in the field	Content source not determined yet
Implementation Experience	Relevant deployment experience in named product in country	Relevant deployment experience in named solution in other countries	Relevant health experience but not in named solution
Breadth of Delivery Channels	Text and voice (can be IVR or call center), and data component in service	Single channel focus	Not determined yet
Business Model	Charging model in place which allows for some cost recovery from consumer	Funding strategy in place that is dependent on external sources (e.g. donors or government)	Not determined yet
Partner Coverage	Partnerships from government, health sector and private sector	Partnerships on either the health side or private sector side	Not determined yet
Availability of Funding	Funding sources to launch the service	Funding sources identified but not secured yet for launch of service	Not determined yet
Launch Readiness	Ready to launch service within 6 months	Ready to launch service within 12 months	Not determined yet

Figure 29

High Level Assessment of mHealth Service Providers

There are a number of attractive services which integrate demand generation with registration and data surveillance already being piloted or in service.



The two services which have both demand generation as well as registration/ data surveillance components (Mobile MidWife / Mobile Baby) have strong mobile operator backing.

Figure 30

mHealth Enablers

Key Observations

Programmes that address financing and incentives as well as aggregating data on the back-end need to be considered to maximize the success of mHealth.

- Programmes addressing financial incentives, such as SURE-P MCH, will create incentives for adoption by consumers and community health workers, as well as potential for sustainability and an appetite for private sector participation.
- Programmes addressing integration into DHIS2 will promote alignment to standards in data collection and improve the accuracy of data collection.

Enabler: SURE-P MCH

The SURE-P MSH objective is to mitigate the impact of the fuel subsidy reduction on vulnerable populations in Nigeria, by initiating a robust social safety net programme to improve their lives. The maternal and child health component aspires to contribute to the reduction of maternal and newborn morbidity and mortality and increase maternal access to health services through two forms of intervention:

- Supply side: provide PHCs with health workers, infrastructure upgrades and commodities, to enable sufficient and qualitative service delivery.
- Demand side: provide conditional cash transfers (CCTs) to pregnant women in communities across the nation, to encourage them to go through the full continuum of MNCH services.

The programme builds on the Midwives Service Scheme (MSS) of the NPHCDA, a parastatal of the Federal Ministry of Health.

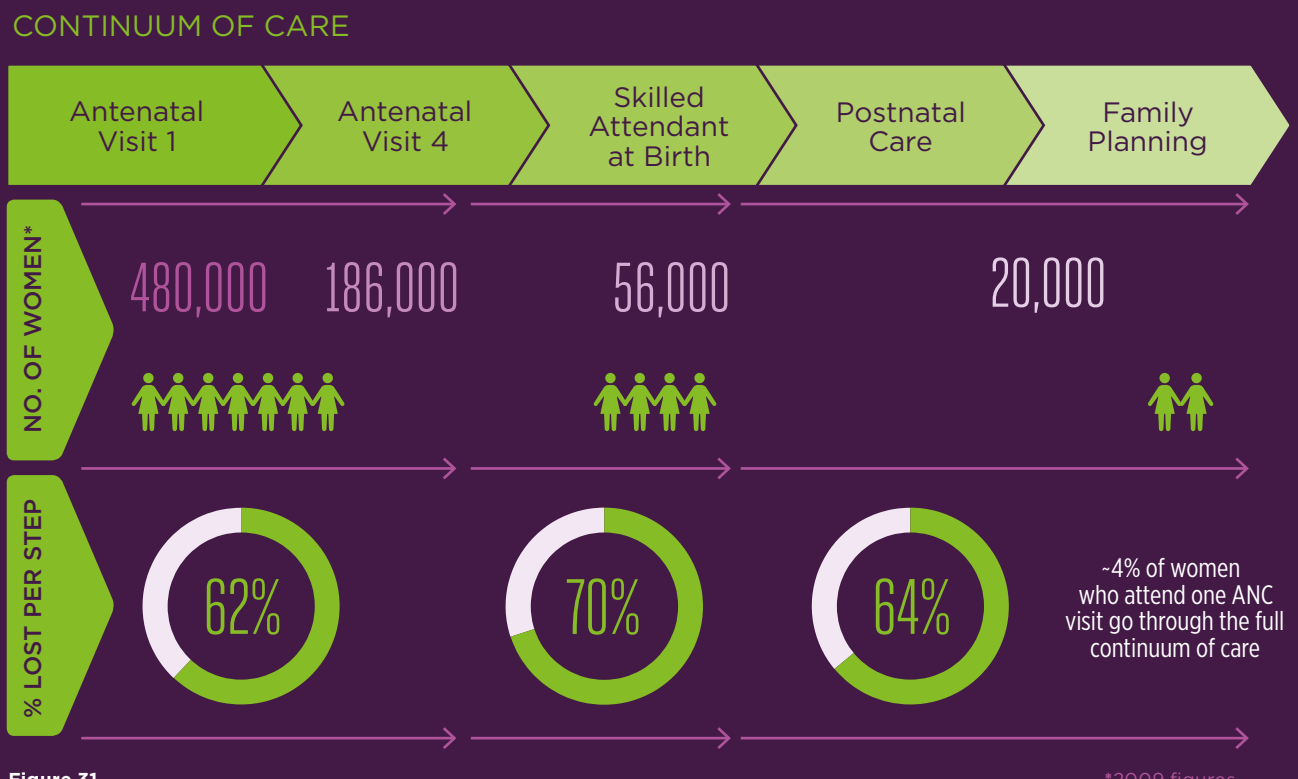


Figure 31

*2009 figures

Mobile technology at different levels can improve our efficiency and patient care

	mHealth Potential	SURE-P MCH Actions To Expand CCT
IN HEALTH FACILITIES	Health workers can register patients and enter health records on tablet devices.	Partnering with Pathfinder International to make CommCare applications available for health workers and CHEWs. Decision-making applications can tailor information to the beneficiary's history.
IN THE COMMUNITY	CHEWs can use tablets to view and update beneficiary records on their visits, improving data completeness.	
FOR BENEFICIARIES	Applications recording patient contact details can be used to send women appointment reminders (to improve service uptake and retention) and health advice.	Currently using ANC days and cash transfer days to provide supplementary mass health advice. Hoping to leverage on Pathfinder collaboration to provide individual advice and reminders.
CASH TRANSFERS	Women can receive cash support by transfers to mobile wallets.	In development to be provided as part of Pathfinder collaboration.

Figure 32

Pathfinder has developed CommCare applications for use in SURE-P MCH CCT facilities

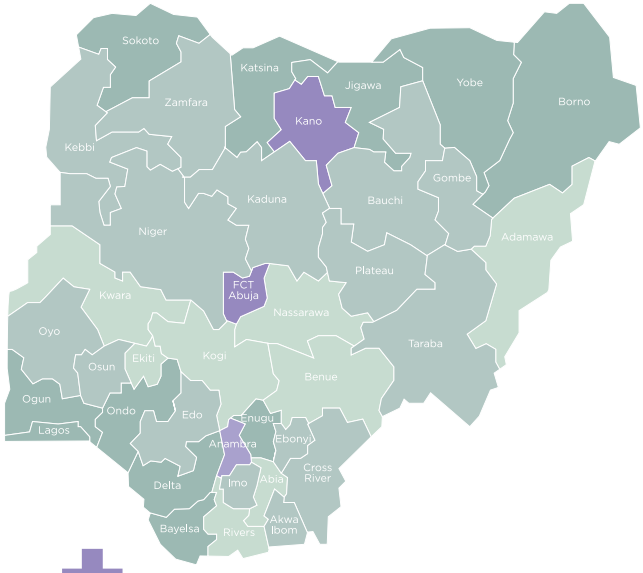
- Pathfinder International Nigeria has been piloting a mHealth intervention, providing CHEWs with mobile phones equipped with a decision-making application.
- SURE-P MCH is partnering with Pathfinder to make mHealth applications available in a selection of CCT facilities.
- The decision-making application can be used in facilities and communities by health workers and CHEWs/VHWs.
- Pathfinder are also developing a mobile payment application for use in the SURE-P MCH CCT.
- Linked beneficiary data can be drawn from HMIS records and CCT databases to create a unified CCT dashboard

The collaboration is currently a pilot in Federal Capital Territory (FCT), which may be expanded to other SURE-P MCH clusters later in 2014.

Figure 33

SURE-P MCH is joining a pilot NPHCDA collaboration with Qualcomm funded project

- Provides Android tablet-based application to midwives in NPHCDA clinics.
- The application is used for assessment, management and referral of pregnant women.
- Application generates reports automatically, including:
  - ANC & Pregnancy Outcomes
  - Mortality & Morbidity
  - Immunizations
  - Referrals
  - Monthly Records of Growth Monitoring, Family Planning, ANC and Pregnancy Outcomes in District & LGA
  - NHIS & Area Council Monthly Summary Forms
- Other stakeholders include:
  - Vecna Cares Charitable Trust [CliniPAK software]
  - Etisalat [subsidised/free data plans]
  - Evidence For Action [program M&E and reporting]
  - InStrat Global Health Solutions [project management]



The collaboration at pre-pilot stage in Federal Capital Territory (FCT), with the main pilot scheduled in three states for November 2014.

Figure 34

Enabler: DHIS2 / HISP

DHIS 2 is open source software, which is developed, customized and used for reporting, analysis and dissemination of the health data of many health programmes and is the integrated repository for all health statistics. It was endorsed by the WHO and is operational in more than 40 countries, now forming the national standard in 12 of those countries.

The dashboard provides real-time, trackable and friendly information, which can be made available to the public. Data is presented both as graphs/histograms and as coded maps.

Health Information Systems Programme (HISP) Nigeria is partnering with the DHIS 2 team to pilot a small Logistics Management Information System which is based primarily on the stock availability sub-section of the National Health Information Dataset.

The pilot reports stock outs, directly from health facilities, using simple SMS. DHIS 2 will also provide training to interested stakeholders and will be implementing the DHIS 2 mobile suite in public health facilities across the country.

mHealth Content Aggregators

Key Observations

Aggregators are crucial to mHealth sustainability in Nigeria.

- Operators are largely dependent on VAS providers to provide content and value-added services to drive interest and volume for connectivity.
- Health and finance services dominate the mobile for development (M4D) space, with aggregators beginning to specialize in full-service segment-specific VAS (e.g. health services which provide messaging, access to live health advice, directory services, referrals).
- Common challenges for aggregators include access to reliable content, clarity of regulation around mHealth, public endorsement for their services and sustainability of revenue.
- Aggregators are eager to engage in the process and have helped the mHealth service community to secure common short-codes and blanket (discounted) tariffs.

VAS Provider Spotlight: VAS2Nets

SERVICE OVERVIEW

Countries of operation in Africa: Nigeria, Ghana, Gambia

Mobile operator relationships: MTN, AirTel, Vodafone, Etisalat, Globacom, Tigo, Kasapa

Delivery channels provided /services: Ringtones, news updates, IVR, SMS subscription, SMS broadcast, USSD, dating, billing, toll-free lines, premium rate voice lines, OBD, IBD

Reach: Ringtones (>1m), news updates (>1m), IVR (50k-250k), USSD (<50k)

Content services: Health, agriculture, financial, entertainment, sport, dating, reference and directory,

KEY SERVICE CHARACTERISTICS

Target audience: At present, mostly urban

Average spend on VAS: N10-N30, per month

Typical take up rate: 2%-10% (dependent on service and operator)

Revenue share: Ranges from 85% to 50% in favour of the operator

Ownership for promotion and marketing of VAS: Primarily with the aggregator, with occasional support from operator on a prospect basis (recent regulations from NCC have changed so that marketing for VAS needs to originate from mobile operators)

Key needs from community: Free-call registration (operator); national endorsement (government at national and local level; technical support and credibility (health service provider)

Key challenges: Billing rates, costs of scaling and availability of sustainable revenue stream, perceptions from health sector.

CONTENT OFFERED	CONTENT PARTNER/S	TYPE OF CONTENT (E.G MOTHER & CHILD FOR HEALTH)	ENDORSING BODY(S)
HEALTH	Oneworld-UK; in house medical team	Mother & child, pregnancy, General medicine on MTN, Airtel and Etisalat	Individual doctors and Doctor Association being sort now
FINANCIAL	Access Bank	Financials and information alerts	Access Bank, Standard Chartered bank, Heritage Bank, Union Bank
AGRICULTURE	Food Basket Foundation International; Novus Agro	1. Weather Forecast: Nigerian Metrological agency 2. Agronomic Practices: Food Basket 3. Locating Market for Produce/Pest control guide: Food Basket, Novus agro, National Agricultural Extension and Research Liason Service 4. Agro Advice: Novus Agro, Food Basket Foundation International	Food Basket Foundation International and Min. of Agriculture to be sought

Figure 35

VAS Provider Spotlight: Starfish Mobile

SERVICE PROFILE AND REACH

Countries of operation in Africa: Nigeria, Ghana, Cote D'Ivoire, Kenya, Tanzania, Rwanda, Uganda, Malawi, Mozambique, Zambia, Zimbabwe, South Africa, DRC, Swaziland, Liberia, Senegal, Mauritius

Mobile operator relationships: MTN, AirTel, Vodafone, Etisalat, Globacom

Delivery channels provided: Ringtones, news updates, IVR, voice SMS, SMS subscription, SMS broadcast, USSD, social (dating), reference (directory, lookup services, billing services, toll-free lines, premium rate voice lines, reverse billing, OBD/IBD, WAP/data

Reach: News updates (>1m), IVR (500k-1m), ringtones (<50k), USSD (<50k), voice SMS (<50k)

Content services: Health, agriculture, financial, education, employment

KEY SERVICE CHARACTERISTICS

Target audience: At present mostly urban

Average spend on VAS: Approximately N15, per month

Typical take up rate: 5% -7% of engaged base (dependent on service and operator)

Revenue share: Ranges from 80% to 60% in favour of the operator

Ownership for promotion and marketing of VAS: Primarily in partnership with the operator

Key needs from community: Regulation on mHealth services (particularly clarity on what can/cannot be serviced over mobile), reliable and accurate content, revenue share arrangements specific to public health services

Key challenges: Revenue share, access to common short codes, relevant and qualified content

CONTENT OFFERED	CONTENT PARTNER/S	TYPE OF CONTENT (E.G MOTHER & CHILD FOR HEALTH)	ENDORSING BODY(S)
HEALTH	Purpleteal, Health wise and Concept Province	General Health, Weight Loses, Conception, Smoking Diabetes, Where there is no doctor, etc	–
FINANCIAL	Aiico Insurance and ARM	Micro Insurance for savings and health cover	–
AGRICULTURE	N/A		–
EMPLOYMENT	N/A	Job postings	–
EDUCATION	DW	Learning By Ear	–

Figure 36

Mobile Network Operators

Key Observations

Mobile operators are keen to reach out to rural subscribers and are eager to partner with parties who are able to help them enter the market quickly and with low regulatory risk.

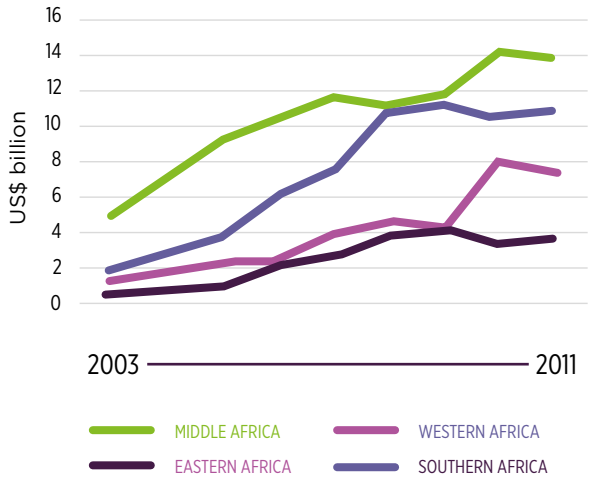
- Mobile access costs have been falling in order to reach out to rural and poorer subscribers.
- Use of mobile data is increasing at an exponential rate in Nigeria, although access by the rural poor will be limited for now.
- All the major operators have already begun forays into mHealth services, but are eager for validated content and clarity from regulators in order to proceed further.
- Mobile operators are looking for credible partners who have established content, technologies and evidence of government support, who can help them with rapid market entry.

Mobile Industry Trends

Nigerian operators are reducing prices to increase market share.

- Increasing total revenue coupled with falling average revenue per user points to increasing targeting of lower income consumers.
- ARPU in Nigeria has fallen by almost 80% over the last 10 years.

Total mobile revenues



Average revenue per user

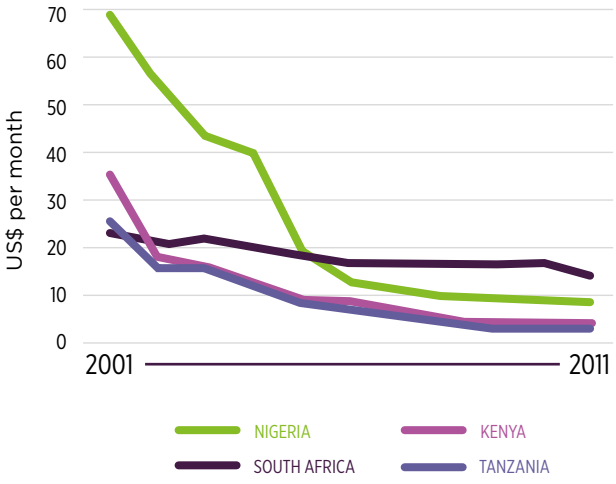
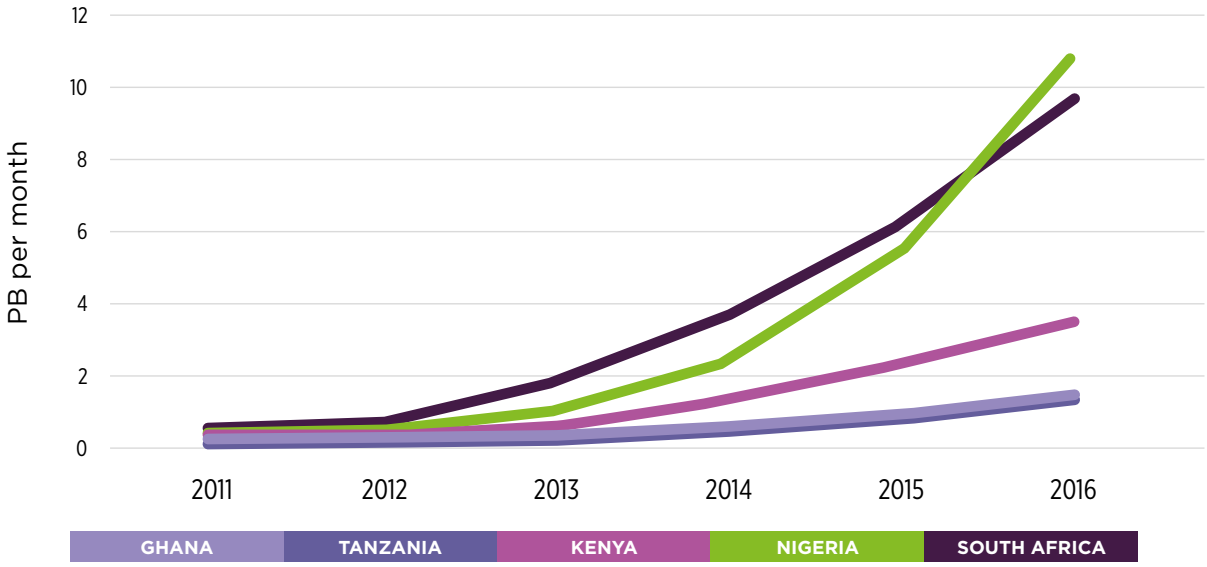


Figure 37 Source: GSMA Policy Brief Sub Saharan Africa, 2012

Nigeria is set to be a leading user of mobile data, with reduced reliance on text only services.

- Nigeria is set to overtake South Africa as the leading African nation for mobile data usage.
- Smartphone penetration is also set to change the dynamics of mobile service delivery.

Usage of Mobile Data



Smartphone Penetration

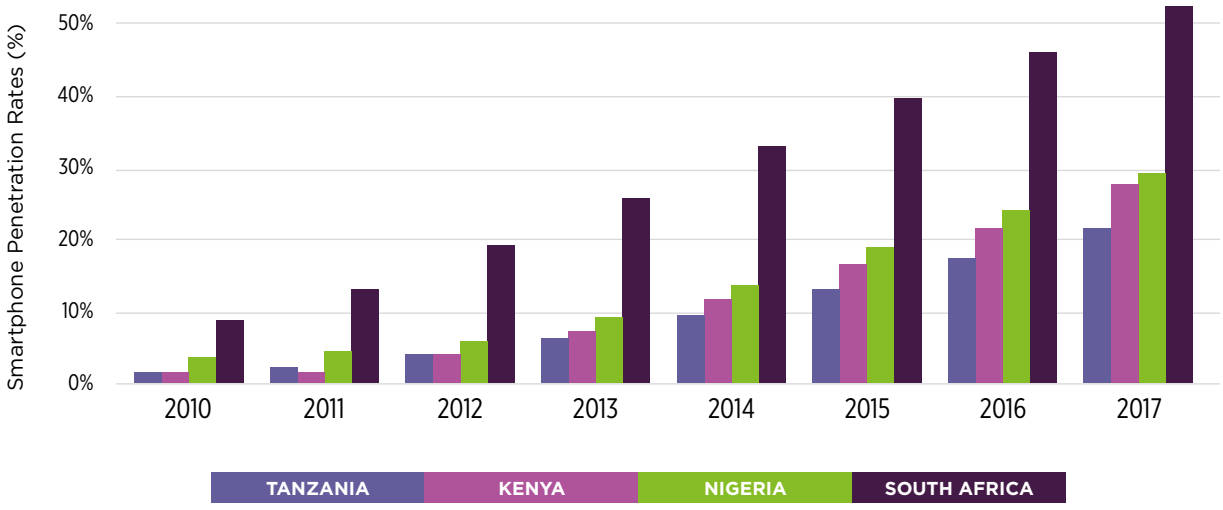


Figure 38 Source: GSMA Policy Brief Sub Saharan Africa, 2012

Mobile Operators

MTN is the market leader, currently with over 45% of market share.

			
MARKET SHARE: **46%** DATE ENTRY: **Aug 2001** NETWORK TYPE: **GSM, WCDMA** Market leader by share, spearheading MNO-led health innovation in both CSR and commercial space.	MARKET SHARE: **19%** DATE ENTRY: **Aug 2001** NETWORK TYPE: **GSM, WCDMA/ HSPA** Strong regional player with existing mHealth portfolio provided through commercial aggregator.	MARKET SHARE: **21%** DATE ENTRY: **Jul 2003** NETWORK TYPE: **GSM, WCDMA/ HSPA, LTE** Major home-grown operator, exploratory stage with mHealth.	MARKET SHARE: **13%** DATE ENTRY: **Oct 2008** NETWORK TYPE: **GSM, WCDMA/ HSPA** Recent fast-growing entrant, interest in growing mHealth portfolio.
Quality			
Excellent	Excellent	Good	Excellent
Coverage			
All regions	West, East, South	West	West, North
mHealth Services			
Health tips, Dial a Doc	Health tips, Dial a Doc	Health tips	Health tips, monitoring solution

Figure 39

Feedback from Mobile Operators

Are you willing to consider blanket tariffs, toll-free lines for health, discounts, common shortcodes?

Willing to consider as long as there is evidence of end-user impact and government support

What are your critical needs of the mHealth service community?

Help with endorsement from federal and state ministry of health, and cooperation from NMA

How should potential partners engage with you to develop a service?

We hope to work with partners who already have a workable product concept, business models and proven technologies which can fit easily into our infrastructure. We typically trial a product out in the market first to see how it responds it the market, rather than spend a long time in research & product development

What are common challenges for operators in mHealth?

Verified content is key – due to the potential legal costs and liabilities if health incidents arise as a result of services

To what extent is mHealth a business opportunity for you?

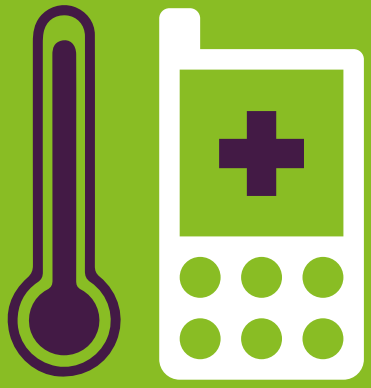
We firstly seek to have a service which delivers value and impact to the population – if we can prove that, the business opportunity will naturally follow

Figure 40

The Potential for mHealth Partnerships

mHealth Partnerships

Since November 2013
8 PARTNERSHIPS
brokered by the GSMA

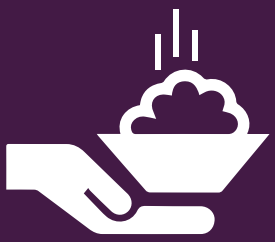


mHealth Feasibility

Overall assessment of mHealth feasibility to address nutrition and maternal/child health

HIGH

Size of Opportunity



Scale of MCH/Nutrition problem

HIGH

Size of addressable population

HIGH

Ability to pay or fund mHealth

MEDIUM

Ability to Deliver

mHealth service providers

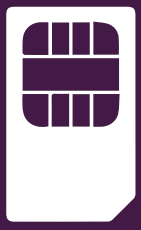
HIGH

Strength of supporting programmes

HIGH

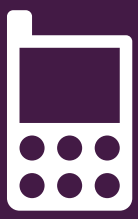
Interest from commercial aggregators

HIGH



Interest from mobile operators

HIGH-MEDIUM



Supporting mobile / health regulation

LOW

Willingness to partner

HIGH

The Potential for mHealth Partnerships

Key Observations

- The GSMA has facilitated eight partnerships between mHealth service providers, commercial aggregators and the mobile operators which have potential for scale across Nigeria.
- Partners share a number of common challenges in the scaling up of their services.
- Partners can assist each other in addressing these common challenges, with support from the GSMA and government.
- Overall feasibility to use mHealth to address maternal and child health and nutrition issues in Nigeria is high.

Facilitated Partnerships

Since September 2013, the GSMA has brokered eight partnerships between the mobile and health sectors, by convening players from both sides and facilitating the understanding of each others' positions to leverage strengths.

This activity is unprecedented in Nigeria; the linking of health and mobile, including all mobile operators and active content aggregators, with identified potential for scale.

These partnerships have already given the health players access to common short codes and attractive business models which the commercial mobile players have already negotiated, while the latter benefit from the credibility and implementation experience of the health players.

mHealth Area	Health Partner	Alignment To Health Area	Commercial Aggregator Participation	Operator Involvement	Government Support	Coverage
Demand creation	Well Being Foundation, MAMA	MCH	VAS2Nets, Starfish Mobile	MTN, AirTel, Etisalat	SOML	National
Demand creation	MAMA	MCH	Starfish Mobile, VAS2Nets	MTN, AirTel, Etisalat	SOML	National
Demand creation. registration	VAS2Nets/ GSMA	MCH	VAS2Nets	MTN, AirTel, Etisalat	Lagos / Ikeja LGA	State level
Registration, data collection	Pathfinder International, SURE-P MCH	MCH	VAS2Nets, Starfish	MTN, AirTel, Etisalat, Globacom	SOML	National
Demand creation, registration, data collection	Grameen	MCH	VAS2Nets	AirTel	SOML	National
Job aids, logistics, immunization tracker, mobile lab results	CHAI	MCH, PMTCT, HIV	VAS2Nets	MTN, AirTel, Etisalat	FMOH, SOML, NACA	6 States
Demand creation, registration, job aids, mobile lab results	MSH	MCH, PMTCT, HIV	Starfish Mobile, VAS2Nets	MTN, AirTel, Globacom	SOML	1 State
Registration and data collection	SURE-P MCH, InStrat Global Health Solutions	MCH	NONE	Etisalat	SOML	National

Figure 41

Identified Characteristics

These partnerships exhibit characteristics which offer the best potential for national scale

- Coverage of key mHealth use cases of demand generation, registration and data collection, which are aligned to national priorities
- Coverage of priority health areas of maternal and child health and nutrition (HIV and immunization in support)
- Sources of content which have already been validated, or will be validated, by national and international health agencies
- Support from commercial aggregators and/or mobile operators, who can support on limited blanket tariffs, discounts, common short codes and national marketing
- Potential for commercially sustainable business models through alignment with the above commercial aggregators and/or mobile operators.
- Initial support and endorsement from relevant national and local government agencies

Key Supporting Partners

We have also identified partners in the wider ecosystem that we will continue to work with to support the programme

- National Committee on Food & Nutrition (NCFN) – an inter-sectoral coordination body that provides overall coordination and leadership of the National Plan of Action on Food & Nutrition
- Scaling up Nutrition (SUN)/FMOH/Nutrition Division – a movement/platform that brings organizations together across sectors to support national plans to scale up nutrition by helping to ensure that financial and technical resources are accessible, coordinated, predictable and ready to go to scale
- National Agency for Food & Drug Administration Control (NAFDAC) – a regulatory agency that is needed for the endorsement of nutrition messages
- Development Partners/NGOs – (USAID/Targeted States High Impact Project (TSHIP), CIDA, WorldBank, UNICEF, WHO, Save the Children, Micronutrient Initiative, etc.)

Barriers to Scale

Common challenges

Challenge	mHealth Service Provider	Commercial Aggregator	Mobile Operator
Availability of validated, localized and relevant mobile content		✚	✚
Lack of credibility in the health sector		✚	✚
Lack of clarity around mHealth regulations and standards	✚	✚	✚
Connectivity costs which reduce affordability and access	✚	✚	
Lack of common short codes which limit reach & ease of use	✚	✚	
Lack of sustainable commercial model for mHealth	✚	✚	✚

Figure 42

Each stakeholder, together with government and the GSMA, can work to address the challenges.

Challenge	mHealth Service Provider	Commercial Aggregator	Mobile Operator	Government	GSMA & SOML Community
Availability of validated, localized and relevant mobile content	Play a part in the development of field tested content	Help test content with their users	Help test content with their subscribers	Support processes for content validation	Support development of local content
Lack of credibility in the health sector	Provide operational and sector credibility	–	–	Endorse partnerships which meet criteria	Support development of criteria for pubic endorsement
Lack of clarity around mHealth regulations and standards	Provide input as to what regulations and standards need to be adopted	–	–	Support in endorsement of standards	Help develop commonly adopted mHealth standards
Lack of common short codes which limit reach & ease of use	Help their commercial partners with differentiating their product	Help work with operators to obtain codes	Explore the possibility of common codes	Provide support through the regulator	Provide the business case for common short codes
Connectivity costs which reduce affordability and access	Provide accurate costing and impact information	Help identify areas for pricing flexibility	Explore mutually beneficial pricing terms	Provide public justification and support	Help develop business models which show ROI

Figure 43

Overall Assessment of Feasibility

The feasibility for mHealth to address nutrition and maternal and child health in Nigeria is high, with a large target population driving overall attractiveness and impact for both the mobile and health sectors. The GSMA and the public sector will work together to address common challenges and best optimize the chance of success for these partnerships.

Size of Opportunity

Scale of maternal and child health / nutrition problem – **HIGH**
Size of addressable population – **HIGH**
Ability to pay or fund mHealth – **MEDIUM**

Ability to Deliver

mHealth service providers – **HIGH**
Strength of supporting programmes – **HIGH**
Interest from commercial aggregators – **HIGH**
Interest from mobile operators – **HIGH-MEDIUM**
Supporting mobile / health regulation – **LOW**
Willingness to partner - **HIGH**

Abbreviations and Terminology

ANC – Antenatal Care
ARPU - Average Revenue per User
B2B – business to business
B2C – business to consumer
CCT – Conditional Cash Transfer
CHEW - Community Health Extension Worker
CHW - Community Health Worker
CSR - Corporate Social Responsibility
FCT - Federal Capital Territory
GDP - Gross Domestic Product
GSM - Global System for Mobile
HISP – Health Information Systems Programme
IBD – Inbound dialling
ICT – Information and Communications Technology
IVR – Interactive Voice Response
LGA – Local Government Area
MDG – Millennium Development Goals
MCH – Maternal and Child Health
MNCH – Maternal Neonatal and Child Health
NGO - Non-Governmental Organisation
NPHCDA – National Primary Healthcare Development Agency
NSHDP - National Strategic Health Development Plan
OBD – Outbound dialling
PAMI – Pan-African mHealth Initiative
PHC – Primary Healthcare Centre
SMS – Short Message Service
USSD – Unstructured Supplementary Services Data
VAS – Value Added Services
WAP – Wireless Application Protocol
WCDMA - Wideband Code Division Multiple Access
WHO – World Health Organisation

For more information on GSMA mHealth
please visit www.gsma.com/mobilefordevelopment