

Essential Childhood Medicines Scale-Up Plan

2012-2015

June, 2012



Federal Republic of Nigeria

Essential Childhood Medicines Scale-up Plan 2012 - 2015

Federal Ministry of Health
National Primary Health Care Development Agency



ACKNOWLEDGEMENTS

This plan was developed by stakeholders from a diversity of backgrounds and expertise within the realm of Maternal and Child Health. With the same primary objective—to significantly decrease the number of child deaths in Nigeria in the next three years and beyond—these stakeholders have focused their attention in this plan on successful strategies for increasing the number of children with access to simple yet life-saving treatments for the most common killers of Nigeria’s children:

Federal Ministry of Health	National Primary Health Care Development Agency
National Agency for Food and Drug Control and Administration	Pharmacists’ Council of Nigeria
Family Health International 360	Future Health Systems
World Bank	Pharmaceutical Manufacturers’ Group of the Manufacturer’s Association of Nigeria
Save the Children	Clinton Health Access Initiative
USAID DELIVER Project	United Nations Children’s Fund
John Snow International	United States Agency for International Development
Society for Family Health	Canadian International Development Agency
National Association of Private Patent Medicine Dealers	IDA Foundation
Community Health Practitioners Registration Board of Nigeria	Partnership for Reviving Routine Immunization in Northern Nigeria
National Association of Nigerian Nurses and Midwives	Micronutrients Initiative
Department for International Development	World Health Organization
Partnership for Transforming Health Systems Phase II	Paediatric Association of Nigeria

Abbreviations

ACT	Artemisinin-Combination therapies
AMFm	Affordable Medicines Facility for malaria
BCC	Behaviour Change Communication
CCM	Community Case Management
CHEW	Community Health Extension Worker
CHAI	Clinton Health Access Initiative
EDL	Employee Disqualification List
ESMPIN	Expanded Social Marketing Project In Nigeria
FCT	Federal Capital Territory
FT	Fast Track
GSM	Global System of Mobile operators
HMM	Home Management of Malaria
ICCM	Integrated Community Case Management
IEC	Information, Education and Communication
IMCI	Integrated Management of Childhood Illness
IMNCH	Integrated Maternal, Newborn, and Child Health
KAP	Knowledge Attitude and Perception
KOL	Key Opinion Leader
LGA	Local Government Area
MAPS	Malaria Action Plan for States
MDG	Millennium Development Goal
MNCH	Maternal, Newborn, and Child Health
MNCHW	Maternal, Newborn, and Child Health Worker
MSS	Midwife Service Scheme
NAPP	National Action Plan for the Prevention and Control of Pneumonia
NAPPMED	National Association of Proprietary Patent Medicines Dealers
NPHCDA	National Primary Health Care Development Agency
ORS	Oral Rehydration Salts
ORT	Oral Rehydration Therapy
OTC	Over the Counter
PHC	Primary Health Centre
PPMV	Proprietary Patent Medicine Vendors
RDT	Rapid Diagnostic Test
TSHIP	Targeted States High Impact Project
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization
WMHCP	Ward Minimum Health Care Package

TABLE OF CONTENTS

ABBREVIATIONS	4
FOREWORD	6
INTRODUCTION	6
1. EXECUTIVE SUMMARY	8
2. ANALYSIS & STRATEGIC CONTEXT	10
2.1 ACCESS TO ESSENTIAL MEDICINES	10
2.1.1 <i>Diarrhea treatment</i>	11
2.1.2 <i>Malaria treatment</i>	11
2.1.3 <i>Pneumonia treatment</i>	11
2.2 GOVERNMENT OF NIGERIA HEALTH SECTOR AND CHILD HEALTH STRATEGIES	12
2.3 ASSESSMENT OF KEY BARRIERS TO ACCESS	12
2.3.1 <i>Patient Barriers</i>	13
2.3.2 <i>Supplier/provider barriers</i>	14
3. CURRENT MOH/PARTNERS' EFFORTS AND IDENTIFICATION OF PRIORITY AREAS	16
3.1 CURRENT PRIORITIES AND EFFORTS OF MOH AND OTHER PARTNERS	16
3.1.1 <i>Cross disease efforts</i>	16
3.1.2 <i>Diarrhea efforts</i>	17
3.1.3 <i>Malaria efforts</i>	17
3.1.4 <i>Pneumonia Efforts</i>	18
4. TARGETED INTERVENTIONS	19
4.1 VISION AND OBJECTIVES	19
4.2 PROGRAM OVERVIEW	19
4.3 TIMELINE OF INTERVENTIONS	22
4.4 DETAILED DESCRIPTION OF TARGETED INTERVENTIONS	23
I. <i>Generate Demand and Promote Care-Seeking</i>	23
II. <i>Improve availability and use in the public sector</i>	26
III. <i>Improve Affordability</i>	30
IV. <i>Transform the Private-Sector Retail Landscape</i>	32
5. ESTIMATED IMPLEMENTATION COSTS	35
BIBLIOGRAPHY	36

FOREWORD

Nigeria must rapidly accelerate reductions in child mortality—from 2% per year to 13% per year—if it is to keep its MDG4 promise of slashing child mortality rates to 71 per 1000 live births by 2015. This rapid progress will require focused, high-impact interventions in the short-term buttressed by comprehensive, sustainable reform in the long-term. Therefore, and in line with the transformation agenda of President Goodluck Ebele Jonathan, Nigeria has set out a bold vision for rapidly transforming health care in Nigeria—comprising an aggressive goal to save one million lives and improve the quality of care for Nigerians by the end of 2013.

We have identified four priority action areas to achieve this vision in the short- and long-term: the expansion and integration of health services provision, the prevention of disease, the improvement of clinical quality through better clinical governance and the reinvigoration of the health sector by unlocking its private-sector potential.

Taking advantage of short-term opportunities—by leveraging current investments, unlocking private sector potential, and encouraging entrepreneurial solutions—is therefore imperative to improving health outcomes in the immediate future. If we are to reduce child mortality aggressively in the next three years in Nigeria, we must identify and act on the major opportunities for rapid change.

For child health, the opportunities for rapid reductions in mortality lie most saliently with diarrhea, malaria, and pneumonia—three diseases which, despite the existence of affordable, effective treatments—continue to account for 55% of Nigeria’s under-five deaths. Two of our four priority action areas—the expansion and integration of basic health services provision and the reinvigoration of the health sector by unlocking private-sector potential—offer avenues for dramatically reducing the burden of these diseases by increasing access to effective treatments.

The Essential Medicines Scale-Up Plan identifies four short-term interventions that will catalyze this transformation within the next two years: (i) Aggressively engaging the public to immediately seek treatment, (ii) Expanding and integrating the provision of treatment at the primary care level, (iii) Rapidly mobilizing private providers to promote effective treatments, and (iv) Partnering with pharmaceutical suppliers to increase affordability and availability. Through these interventions, we can prevent the premature deaths of over 221,000 children by the end of 2013.

Implementation of these short-term interventions will not only lead to rapid, dramatic improvements in the quality of life for Nigerians, but will also support our existing national initiatives and fast-track our achievement of the MDG4 target by 2015. By pursuing these short-term opportunities, we will create a more robust foundation from which to strengthen health services provision while fulfilling our promise of immediately reducing child mortality—a promise that impacts the lives of all Nigerians.



Dr. Muhammad Ali Pate

Honourable Minister of State for Health
Federal Ministry of Health

INTRODUCTION

Even today, nearly 600,000 under-five children die every year in Nigeria from diarrhea, pneumonia, and malaria. This represents 55% of the more than 1,000,000 under-five children who die annually in Nigeria and these three diseases therefore represent the most significant opportunities for preventing the needless deaths of Nigerian children.

This Essential Medicines Scale-Up Plan aims to address this burden by rapidly improving access to appropriate treatments for these three diseases through targeted, practical, and cost-effective interventions with a short term implementation timeline. In this way, the plan seeks out innovative solutions to improve care-seeking behavior, make essential medicines more affordable for Nigerians, strengthen the supply of essential medicines to public facilities, and build partnerships with Nigeria's large and vibrant private sector—an important source of essential medicines for childhood illnesses and the primary place of treatment for over 40% of childhood illnesses.

In this way, the implementation of this scale-up plan will move NPHCDA closer to its broad goals of ensuring community access to basic health services, promoting community participation and ownership, and mobilizing diverse stakeholders—in both the public and private sector—to support the delivery of primary and community-based health services. Indeed, ensuring that primary healthcare staff are not only trained to provide services, but are also adequately equipped to deliver those services with high quality, is a key driver behind NPHCDA's leadership in the development of this scale-up plan. And, just as the plan was developed in close coordination with a broad array of key partners, NPHCDA is counting on the continued support and expertise of these partners in further pursuit of the fourth Millennium Development Goal.

This National Essential Medicines Scale-Up provides a concrete roadmap for achieving this goal by saving the lives of hundreds of thousands of Nigeria's children through innovative, dynamic interventions: Over the next four years, the interventions in this scale-up plan will dramatically increase access to essential childhood medicines—to 80% for the three targeted diseases—and prevent the untimely deaths of 500,000 Nigerian children. In so doing, the scale-up plan clearly articulates the activities, timelines, and immediate next steps necessary for NPHCDA and its partners to successfully drive down Nigeria's under-five mortality rate by 2015.

The next step is implementation, and Nigeria—with NPHCDA in particular—is eager to work quickly with her partners to achieve the fourth Millennium Development Goal and secure a brighter, healthier future for her children.

Dr. Ado J.G. Muhammad

Executive Director/CEO

National Primary Health Care Development Agency

1. EXECUTIVE SUMMARY

Nearly 600,000 children under the age of five die annually in Nigeria due to pneumonia, diarrhea, and malaria, which together represent 55% of Nigeria's under-five mortality. While Nigeria has made promising reductions in child mortality in the past decade, these gains must be accelerated to reach the fourth Millennium Development Goal of cutting child mortality by two-thirds between 1990 and 2015. Specifically, Nigeria must increase the annual rate of reduction in child mortality—from 2% per year to 13% per year—in order to achieve its goal of 71 per 1000 live births by 2015. This rapid progress will only be possible through ambitious, concerted actions that address the greatest drivers of child mortality – diarrhea, malaria, and pneumonia.

Ambitious efforts to scale-up prevention of these three conditions are underway, including mass distribution of long-lasting insecticide-treated nets to prevent malaria and the planned introduction of a new vaccine to prevent pneumonia. However, even if fully successful, these interventions will only prevent a portion of related child deaths. Additional action against all three killers is needed to achieve the MDGs.

For all three of these conditions, effective treatments exist that could prevent the majority of the remaining deaths. However, these treatments are not reaching the children who need them. For diarrhea, while the majority of caregivers seek treatment outside the home, only 25% of children with diarrhea receive Oral Rehydration Salts (ORS), and less than 1% receives zinc, the two recommended treatments. For pneumonia, antibiotics such as amoxicillin can prevent the majority of deaths. However, over 60% of caregivers do not seek treatment outside the home for pneumonia and, when they do, many do not receive appropriate treatment, resulting in only 23% of children being treated with antibiotics. Artemisinin Combination Therapies (ACTs) are the gold-standard treatment for malaria and while roughly half of caregivers seek treatment outside the home when their child has malaria, only 20% of children receive ACTs. Overall, there is a need and an opportunity to dramatically improve the number of children who are receiving the recommended treatments for these three conditions.

This Essential Medicines Scale-Up Plan—developed by the Federal Ministry of Health and the National Primary Health Care Development Agency with input from NGOs, Development Partners, and professional associations in-country—is to reach 80% coverage of recommended treatments for childhood diarrhea, pneumonia, and malaria by 2015. This aspiration is also in line with the Ministry of Health's vision to save the lives of one million Nigerians by the end of 2013. Indeed, achieving 80% treatment coverage for all children with these effective treatments has the potential to save an additional 221,000 lives by 2013 and more than 730,000 by 2015.

The barriers preventing access to these treatments are well known and can be overcome through the coordinated implementation of a package of basic interventions. Many of those interventions will build off and accelerate the progress of existing essential initiatives. For example, the recommended actions in this strategy aim to strengthen and hasten the impact of the Integrated Management of Childhood Illness (IMCI) approach, which has been a cornerstone of Nigeria's child health strategy but has faced challenges in reaching its targeted scale. Additionally, this scale-up plan identifies new opportunities to dramatically accelerate progress, including expanding access to high quality, appropriate, and affordable treatment through the private sector, which is the source of treatment for more than half of children. In general, the interventions recommended in this plan aim to overcome barriers to child health services overall as well barriers specific to the three target diseases.

For diarrhea, the aim of this strategy is to break the 'market trap' that currently inhibits improved treatment coverage for zinc and ORS whereby low demand leads to and reinforces limited supply. To break this cycle, this strategy will simultaneously increase demand for zinc and ORS while ensuring widespread availability of high-quality products at an affordable price. The greatest focus will be placed on increasing awareness of and demand for the products among caregivers, health providers, and private retailers. This will be done through a large-scale creative marketing campaign, engagement of key opinion leaders, and other effective, scalable behavior change techniques.

These demand generation efforts will overcome historical impediments to ORS and zinc demand by reshaping caregivers' perceptions of effective diarrhea treatment and employing a public-private model to influence private providers. The program will facilitate improved distribution and dispensing in the public sector, and will use rising demand to ensure manufacturers and distributors increase supply and promotion of optimally designed (e.g., co-packaged) and affordably priced zinc and ORS.

For pneumonia and malaria, significant emphasis will be placed on improved care-seeking, especially around the recognition of fast breathing as a warning sign for pneumonia. As with diarrhea, the greatest focus will be placed on raising awareness of and demand for the recommended treatment among caregivers, health providers, and retailers. These efforts will be conducted as part of a coordinated, large-scale child health campaign using proven marketing techniques and key opinion leaders. Another core component of the malaria and pneumonia scale-up efforts will be improving effective diagnosis through increasing the

availability and appropriate usage of diagnostic tools and ensuring the appropriate treatment or care is provided. For malaria, further improving the affordability of treatment and the knowledge and prescribing practices in the private sector will also be critical.

The specific interventions that will be implemented to scale up treatment access for all three areas are grouped into four primary themes that must be implemented in concert to achieve the desired impact. They include:

I. Generate Demand for Appropriate Treatment and Promote Care-Seeking

- Conduct a national action campaign for child health, employing mass media, key opinion leaders, and free sample distribution (*diarrhea, malaria, pneumonia*)

II. Improve Availability and Use in the Public Sector

- Integrate with existing central supply chains to increase availability of medicines and diagnostics in targeted areas (*diarrhea, malaria, and pneumonia*)
- Improve knowledge and skills of health workers to increase appropriate diagnosis and treatment (*diarrhea, malaria, pneumonia*)
- Improve procurement of essential medicines at the state and local levels (*diarrhea, malaria, pneumonia*)

III. Improve Affordability

- Stimulate increased production and broad distribution of affordable, high-quality, and optimally designed ORS and zinc (*diarrhea*)
- Identify and support actions to reduce cost and price of zinc and ORS (*diarrhea*)

IV. Transform Private Sector Treatment Provision

- Conduct continuous communication to and education of private retailers using proven detailing methodologies (*diarrhea, malaria*)
- Facilitate private sector investment in and implementation of marketing and promotion to increase demand for recommended products (*diarrhea*)

Interventions in both the public and private sectors will drive towards the goals of revitalizing integrated service delivery by ensuring universal access to essential healthcare, attaining effective community participation by empowering communities to take positive health actions, and reducing maternal, neonatal, and child mortality by improving access to health services and supplies—as articulated in the National Health Strategic Development Plan and the Integrated Maternal, Neonatal, and Child Strategy. To this end, this scale-up plan will draw from the techniques of the Integrated Management of Childhood Illnesses in building the skills and competencies of both public and private providers and incorporate lessons learned from the Integrated Community Case Management strategy in engaging community support for increased coverage—thereby strengthening the roll-out of these initiatives.

The success of this plan will rely on strong leadership, broad stakeholder engagement, and dedicated resources. The initial estimated costs of the recommended activities are roughly USD 48.8 million over the next two years – with a total of USD 86.2 million over the four-year period. As this plan is a true public-private partnership, it is expected that a portion of the necessary contributions will be provided by the private sector as well as from the government and its donors and non-profit partners.

With the potential to save nearly three-quarters of a million children by 2015, dramatically accelerate progress towards Nigeria's MDG4 target, and contribute to a stronger foundation for Nigeria's health system, this Essential Medicines Scale-Up plan represents a highly cost-effective means of rapidly contributing to a turning of the tide on child mortality. Although the targets are ambitious and the timelines are short, the actions in this plan are straightforward and inexpensive compared to other health programs that have been successfully implemented over the past decade. Through the strong leadership of the government of Nigeria and the active participation of both public and private partners, it is feasible to fully implement this plan in the coming years and drive a transformation of treatment access and child mortality in the country.

2. ANALYSIS & STRATEGIC CONTEXT

2.1 Access to essential medicines

	Diarrhea	Pneumonia	Malaria
Estimated Cases	>50,000,000	~6,700,000	~49,000,000
Estimated Deaths	201,368	177,212	217,357
% of Annual US Deaths	19	16	20

Table 1: Morbidity and Mortality due to Diarrhea, Pneumonia, and Malaria among children under five in Nigeria.

fourth Millennium Development Goal by 2015.

The proportion of children with pneumonia, diarrhea, and malaria that receive appropriate treatment in Nigeria currently stands at less than 30% for all three diseases (Nigerian Demographic and Health Survey, 2008). This poor coverage exists not only in the public health services delivery sector, but also in the private sector, where more than 41% of Nigerians seek care outside the home for childhood illnesses (USAID, 2011) (Figure 2). While there are barriers to appropriate treatment for each disease, there are also significant cross-cutting barriers that hinder access to treatments across all three diseases:

- Care-seeking behavior for childhood illnesses in Nigeria is low. While care-seeking varies depending on the child's symptoms, on average, 30% of children with fever are treated at home (USAID, 2011). Moreover, for children with symptoms of diarrhea, pneumonia, or malaria, at least 29% receive no treatment at all (USAID, 2011).
- Primary health providers in the public sector are often ill-equipped and ill-stocked to confront the most common childhood illnesses effectively. Community Health Extension Workers (CHEWs) lack appropriate job aides and commodities for the diagnosis and treatment of these diseases—with over 75% of Primary Health Centers (PHCs) reporting regular stock outs of essential medicines.

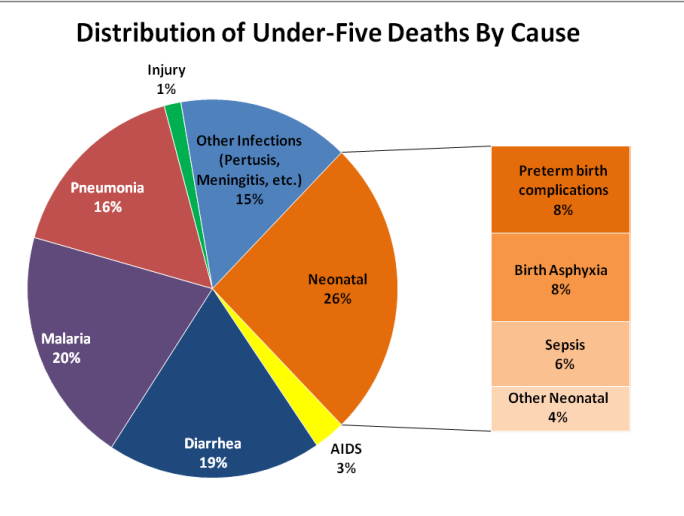


Figure 1: Proportional distribution of under-five mortality in Nigeria by cause of death.

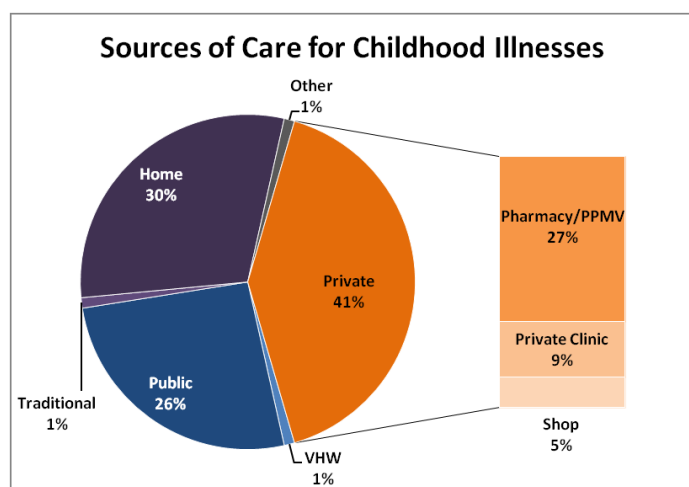


Figure 2: Proportional distribution of sources of care for childhood illnesses involving fever in Nigeria.

- Primary health providers in the private sector often fail to treat the most common childhood illnesses effectively. No formal requirements or structures for the training and ongoing education of Proprietary Patent Medicine Vendors (PPMVs) on common childhood illnesses exist, despite these retailers accounting for the majority of private-sector health provision for these illnesses.

In the public sector, inadequate forecasting, poorly functioning central supply chains, and erratic local procurements stymie provision of essential medicines for pneumonia, diarrhea, and malaria. In the private sector, limited manufacturing competition, high production costs, and high mark-ups lead to retail prices that stretch the limits of affordability for most Nigerians.

2.1.1 Diarrhea treatment

Diarrhea diagnosis in Nigeria is most typically done symptomatically by public and private primary providers and retailers based on the characteristics and frequency of the child's stools.

The nationally recommended treatment for diarrhea is ORS and zinc. The cost of three sachets of ORS is between USD 0.63-USD 4.38 and can be found over-the-counter (OTC) at many drug shops and pharmacies. Conversely, zinc may also be sold over-the-counter, but it is less widely available and costs approximately USD 1.25-USD 3.13. Although both products are available in Nigeria, coverage rates for ORS and zinc are low: only 25% of caregivers use ORS to treat diarrhea and less than 1% use zinc (DHS, Nigerian Demographic and Health Survey, 2008). More frequently, caregivers treat diarrhea by either using antibiotics such as Metronidazol (33%) that cost between USD 0.30-USD 2.60, giving home remedies (24%), or with no treatment at all (29%) (DHS, Nigerian Demographic and Health Survey, 2008).

Of the caregivers who do seek treatment, 25% access treatment in the public sector and 36% access treatment in the private sector. Private sector retailers serve as a major outlet for treatment, and 29% of caregivers seek treatment from these pharmaceutical retailers. 36% of caregivers also access treatment in the home, presumably due to cultural or community preferences for alternative therapies, perceptions of disease that underestimate the danger of certain types of diarrhea, or concerns about the affordability of treatment (USAID, 2011).

2.1.2 Malaria treatment

Malaria diagnosis techniques differ based on the choice of the provider. Lower level health providers such as those found in pharmacy outlets typically diagnose malaria based on visible symptoms such as fever. Alternatively, higher-level health practitioners usually base their diagnosis on a combination of symptoms and microscopy and/or Rapid Diagnostic Tests (RDTs).

The recommended treatment for uncomplicated malaria is ACT, and first line treatment as recommended in the clinical guidelines is either Arthemether-Lumefantrine (AL) or Artesunate Amodiaquine (AA). For severe malaria, IV artesunate is the recommended first-line treatment. Since the introduction of the Affordable Medicines Facility for malaria (AMFm) in Nigeria, co-paid ACTs are available at a recommended retail price of USD 0.50. Currently, average retail price of AMFm ACTs is USD 1.56-USD 1.75 for a single course. Coverage of ACTs, however, remains low: 20% of caregivers ACT treatment for malaria, 29% access other treatments, and 51% do not access any treatment at all.

Only 10% of anti-malarials are provided in the public sector while the remaining 90% are provided in the private sector. As in diarrhea treatment, PPMVs serve as a major source of health care as highlighted by their accounting for 58% of anti-malarial distribution.

2.1.3 Pneumonia treatment

The diagnosis of pneumonia is primarily done symptomatically by public and private primary providers and retailers; it is presumed that diagnosis is generally weak due to conflation of fever with malaria. Correct diagnosis is further lessened by low awareness on the part of caregivers, with less than a quarter of caregivers recognizing symptoms of pneumonia (MICS, 2007).

The nationally recommended first-line treatment for pneumonia is the antibiotic cotrimoxazole, with amoxicillin as the second-line treatment. Only 23% of caregivers, however, access any antibiotics, and the proportion of caregivers that do not access treatment is as high as 65% (DHS, Nigerian Demographic and Health Survey, 2008).

When treatment for a fever is accessed, 26% of caregivers turn to the public sector and 42% to the private sector—with 27% of caregivers referring to private pharmaceutical retailers for treatment (USAID, 2011). Similar to malaria, a low proportion of caregivers (30%) access care at home. Moreover, the 2007 MICS found that while 41% of caregivers sought treatment for cases of suspected pneumonia from appropriate providers, antibiotic treatment was provided in 46.4% of suspected cases, which suggests that large a portion of those seeking appropriate care receive appropriate treatment.¹

¹ NB: The fact that antibiotic treatment was provided in greater proportion of cases than the proportion of caregivers who sought care from appropriate providers is likely due to the provision of antibiotics by “inappropriate” providers—which included shops and PPMVs.

2.2 Government of Nigeria Health Sector and Child Health Strategies

The implementation of health systems interventions in Nigeria is guided by the 2008 National Health Strategic Development Plan, which focuses on strengthening the eight building blocks of the health system to improve health outcomes nationally. Moreover, the 2007 Integrated Maternal, Neonatal, and Child Health Strategy aims to achieve health outcome improvements for women and children in line with Nigeria's Millennium Development Goals 4 and 5.

Together, these two documents articulate the goals of revitalizing integrated service delivery by ensuring universal access to essential healthcare, attaining effective community participation by empowering communities to take positive health actions, and reducing maternal, neonatal, and child mortality by improving access to health services and supplies.

More recently, President Goodluck Ebele Jonathan's transformation agenda has mandated government to deliver rapid, dramatic improvements in the lives of Nigerians. In line with this agenda, the Ministry of Health is pursuing an initiative to save one million lives and improve the quality of care by 2013. This initiative requires the implementation of high-impact interventions in the short-term in order to realize rapid gains in mortality reduction and strengthen the country's foundation for health system strengthening.

2.3 Assessment of key barriers to access

As highlighted in section 2.1, access to appropriate treatment is constrained in all three disease areas due to limited care-seeking, poor diagnosis, and the failure to provide appropriate treatment even when the diagnosis is made correctly. These three scenarios are underpinned by a range of 'root causes' that constitute key barriers to access—both cross-disease and disease-specific. Table 2 below provides a high-level description of the key barriers to access to appropriate treatment for malaria, pneumonia, and diarrhea.

Table 2 – Barriers to access to essential childhood medicines

	Patient	Public provider	Private provider
Cross-disease	<ul style="list-style-type: none"> Low treatment seeking (due to i.e. religious/traditional beliefs, geographic access, etc.) Low awareness of dangers & symptoms of common childhood illnesses High cost of treatments 	<ul style="list-style-type: none"> Insufficient skills among health workers to diagnose and treat childhood illnesses Weak forecasting, procurement, and supply chain management at all levels leading to unreliable supplies 	<ul style="list-style-type: none"> Low knowledge of appropriate treatments among PPMVs and other private providers Illicit POM drugs sales lead to competition with appropriate treatments and poor quality
Diarrhea	<ul style="list-style-type: none"> Limited availability and affordability of Zinc/ORS Awareness & perceptions of Zinc/ORS as effective diarrhea treatment 	<ul style="list-style-type: none"> Low use of ORS and Zinc due to low coverage of training and lack of availability 	<ul style="list-style-type: none"> Low awareness of Zinc Limited local high-quality, low-cost production of Zinc and ORS.
Malaria	<ul style="list-style-type: none"> Low awareness of availability and affordability of AMFm ACTs Price of ACTs 	<ul style="list-style-type: none"> Limited availability of ACTs due to global supply challenges Limited availability of RDTs at all levels 	<ul style="list-style-type: none"> Limited availability of malaria diagnostics at retailer level Limited awareness of affordability & availability ACTs
Pneumonia	<ul style="list-style-type: none"> Lack of symptom awareness, leading to no or delayed care-seeking Price of full treatment is often too high, leading to no treatment or poor adherence 	<ul style="list-style-type: none"> Lack of knowledge on differential diagnosis for pneumonia and malaria Limited availability of diagnostic job aids and skills Limited HW training on pneumonia management 	<ul style="list-style-type: none"> Lack of knowledge / equipment for pneumonia diagnosis No incentive to refer for appropriate treatment (PPMVVs) Prescription only antibiotics may limit accessibility

2.3.1 Patient Barriers

2.3.1.1. Cross-disease patient barriers

Poor care-seeking behavior

Care-seeking behavior for childhood illnesses in Nigeria is low. Only about 30% to 42% of caregivers (NBS/UNICEF, 2007) seek treatment outside the home for diarrhea, and this situation is similar for pneumonia (45%) and malaria (54%) (DHS, Nigerian Demographic and Health Survey, 2008). In all cases, this is likely due a combination of several factors, including cultural perceptions of childhood illnesses, the cost of treatment, an inability to recognize the danger signs of common childhood illnesses, and a lack of geographic access to appropriate sources of care.

2.3.1.2. Diarrhea-specific patient barriers

Availability and affordability of zinc and ORS

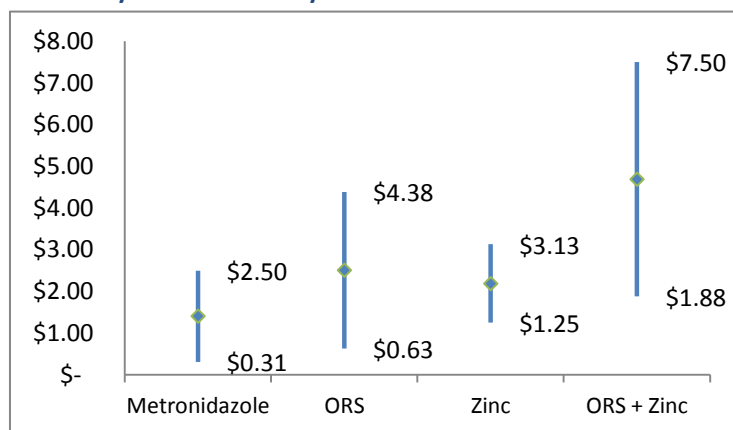


Figure 3: Observed retail prices for common diarrhea treatments in Nigeria.

Low availability and affordability of appropriate treatments likely contribute to a lack of access. As described above, retail prices for a full treatment course of both ORS and zinc (at least USD 1.88 for combination treatment) are significantly more expensive than in other comparable countries and well outside the range of affordability in a country where 80% of the population survives on less than USD 2.00 a day (Figure 3) (CHAI/SFH, 2011). Inappropriate alternative treatments (e.g., antibiotics such as metronidazole) are also typically priced below zinc and ORS, exacerbating this barrier to uptake. High manufacturing and distribution costs likely contribute to the high prices (Semi-Structured Interviews with Suppliers).

Awareness and perceptions of zinc and ORS as effective diarrhea treatments

Caregiver perceptions of zinc and ORS hinder uptake. Most caregivers are unaware of the use of zinc for the treatment of childhood diarrhea and, while over 60% of caregivers are aware of the use of ORS, less than 26% use it for their child's diarrhea (Nigerian Demographic and Health Survey, 2008). At the same time, caregivers are likely to request antibiotics as a treatment for uncomplicated childhood diarrhea (UNICEF, 2011). Key informants indicate that caregivers may perceive ORS as a weak or ineffective treatment for diarrhea and ascribe this perception to a failure to properly market ORS. Home management is the most common caregiver response to childhood diarrhea (44%), but only about 15% of children treated at home receive ORS, while about 20% receive antibiotics, and over 60% receive no treatment (USAID, 2011) (Reyes, Perez-Cuevas, Salmeron, Tome, Guisafre, & Gutierrez, 1997).

2.3.1.3. Malaria-specific patient barriers

Awareness of availability and affordability of AMFm ACTs

With the launch of the AMFm and the introduction of co-paid ACTs, availability of ACTs in public and private sector outlets has increased significantly: one survey found 100% availability in formal outlets and 86% availability in informal outlets (HAI, 2011). Yet in spite of this suggested high availability (and, hence, assumed 'push' by retailers) and Information, Education, Communication (IEC)/Behaviour Change Communication (BCC) campaigns that were launched in the context of the Affordable Medicines Facility-malaria (AMFm), caregiver awareness of the availability and affordability of AMFm ACTs is still relatively low. For instance, only 6.9% of respondents were recently able to name the national first-line ACT drug when asked to list antimalarials they had heard of (Littrell M, 2011;).

Price of ACTs

Another important barrier to uptake of ACTs is the persistently high retail price in comparison to alternative treatments. While the suggested retail price under the AMFm was set at ~USD 0.50, price tracking revealed average prices between USD 1.31 and USD 1.80 per treatment. In comparison, the median prices of the most common alternative treatments—sulfadoxine-pyrimethamine (SP) and chloroquine— are USD 0.46 and USD 0.33, respectively (HAI, 2011).

2.3.1.4. Pneumonia-specific patient barriers**Lack of symptom awareness, leading to no or delayed care-seeking**

While the majority of children with pneumonia for whom care is sought receive antibiotic treatment (NBS/UNICEF, 2007), most caregivers in Nigeria fail to recognize pneumonia as a disease that needs prompt and serious medical attention. In fact, less than a quarter of caregivers are aware of the two danger signs of pneumonia—fast breathing and difficult breathing (NBS/UNICEF, 2007). Of the 45% of caregivers that did seek care for a child with symptoms of pneumonia, the majority indicate that they did so because of the child's fever and not because of the child's respiratory symptoms (NBS/UNICEF, 2007). As pneumonia can kill a child in as little as three days (Reyes, Perez-Cuevas, Salmeron, Tome, Guiscafere, & Gutierrez, 1997), poor recognition of danger signs is an especially important barrier to treatment access for this disease.

2.3.2 Supplier/provider barriers**2.3.2.1. Cross-disease supply barriers****Public sector – Poor availability of essential medicines in healthcare facilities**

Nearly one-quarter of public health facilities do not stock first-line ACTs or antibiotics for pneumonia; only about one third of public facilities stock ORS; and average stock-out durations at public facilities stand at ninety days (WHO/FMoH, 2010). Moreover, public-sector availability is often worse in northern states where mortality burdens are highest and ACTs have been reported to be available in as few as 50% of public facilities.

Poor availability is likely due to procurement challenges at the facility and local government levels as over 40% of PHCs procure medicines at the facility level and another one-third rely on local governments to provide drug stocks (World Bank, 2010). With 26% of caregivers patronizing public health facilities for the treatment of childhood illnesses (USAID, 2011), poor availability of essential medicines in this sector constitutes a major barrier to access.

Public sector - Insufficient knowledge and skills among Community Health Extension Workers (CHEWs) to properly diagnose and treat childhood illnesses

IMCI, while officially rolled out in 36 states, is currently limited to a handful of Local Government Areas (LGAs) per state and covers less than 5% of facilities nationwide. While focused programs such as the Midwives Service Scheme provide added reach to IMCI interventions by using IMCI training guidelines, relatively few primary health workers have access to the skills and tools needed to implement Nigeria's primary child health platform. Moreover, training materials on essential childhood diseases—including pneumonia, diarrhea, and malaria—have not yet been properly integrated into a comprehensive training module that is appropriate for Integrated Community Case Management (ICCM) implementation at the community level. Contributing to this lack of knowledge at the public provider level is the challenge of recruiting and retaining qualified staff at healthcare facilities.

Quality of care for childhood illnesses is therefore low, and studies in both Northern and Southern Nigeria report high levels of client dissatisfaction in primary health facilities as a result (Sambo, 2010) (Ehiri JE, 2005).

Private sector – Poor practices vis-à-vis appropriate treatments among PPMVs

The majority of caregivers who seek care in the private sector do so from PPMVs. However, use of appropriate treatments among these providers is low. In the case of diarrhea, for example, less than 40% of children who receive care for diarrhea from these outlets receive ORS while nearly half receive antibiotics (Nigerian Demographic and Health Survey, 2008).

PPMVs also often miss opportunities to recommend and promote appropriate treatments to caregivers: one study found that nearly 80% of caregivers patronizing PPMVs request specific medications, but PPMVs ask for clarifications or a history from the customer in less than 19% of transactions and simply sell the requested medication 69% of the time (Brieger, Osamor, Salami, Oladepo, & SA, 2004).

2.3.2.2 Diarrhea-specific supply barriers**Public sector – Low use of ORS and zinc due to low training coverage and limited availability**

Only 33% of PHCs stock ORS, in comparison to the 87% that stock (and 80% that prescribe) metronidazole for diarrhea (WHO/FMoH, 2010). Moreover, and as noted above, most CHEWs have not been trained on the use of zinc in the management of childhood diarrhea due to the low coverage of IMCI roll-out, and even those who have been trained do not have access to zinc.

Private sector – Low awareness of zinc due to lack of investment in detailing

No formal structure or requirements for PPMV training on common childhood illnesses exist in Nigeria. Moreover, promotion of zinc and ORS to small-scale retailers is not attractive to many suppliers and distributors due to the low margin and potential sales volume of the products. As a result, they do not typically conduct the large-scale detailing activities that serve to encourage retailers to use effective treatments for other common illnesses. A recent assessment of the private sector supply chain for antimalarials identified PPMVs as having a reputation of providing sub-standard pharmaceutical services to their clients, which in turn made wholesalers reticent to incorporate PPMVs into their formal distribution channels (Palafox, Patouillard, Tougher, Goodman, & Hanson, 2009). This, in turn, is likely to reinforce the tendency of PPMVs to procure products from informal, unlicensed wholesalers and further isolate them from attempts to scale-up appropriate treatments that rely heavily on marketing through formal supply channels.

Private sector – Limited local high-quality, low-cost production of zinc and ORS

Low margins and demand for zinc and ORS have discouraged high-quality and low-cost Nigerian suppliers from investing in production of zinc and ORS despite the fact that they are relatively simple products to manufacture. Suppliers indicate that both ORS and zinc are not priority products due to low demand and have suggested that clear and credible efforts to significantly increase demand would increase the attractiveness of the market and encourage entry of additional producers.

2.3.2.3 Malaria-specific supply barriers

Early diagnosis and prompt, effective treatment are the basis for management of malaria and critical to reducing mortality and morbidity in women and children. Until recently, Nigeria's National Policy on Treatment of Malaria was to treat on the basis of clinical symptoms. However, presumptive diagnosis and inappropriate use of antimalarials is problematic for several reasons:

1. It delays proper diagnosis and treatment for the true cause of illness. A dangerous example of this is febrile children with bacterial infections (treatment given for malaria instead of pneumonia, which accounts for 22% of under 5 mortality) (Nigerian Demographic and Health Survey, 2008) whose antibiotic treatment is delayed because of initial, presumptive anti-malarial treatment.ⁱ
2. It wastes limited resources available for treatment.
3. It may speed the emergence of parasite resistance to anti-malarial therapies.
4. It leads to inaccurate national surveillance of malaria. Currently, malaria prevalence can only be measured through proxies such as fever, meaning disease patterns are not accurately reflected and the impact of expensive malaria interventions cannot be adequately evaluated.

For these reasons, the new National Treatment Policy for Malaria (2009) recommends parasite-based diagnosis for all suspected cases in persons above five years and, where feasible, in those under five years of age. Parasitological diagnosis of malaria is essential to cost-effective and appropriate case management of febrile patients. While the country aims to ensure diagnosis of fever cases prior to treatment through the deployment of RDTs even in peripheral settings, availability and appropriate use of RDTs is problematic without appropriate supporting interventions.

Currently, RDTs are only available in fewer than 30% of health facilities and the country does not have a robust supply chain network to ensure consistent supply of these test kits. Additionally, there is significant wastage of the available RDTs due to minimal adherence to test results (Uzochukwu, et al., 2010) (Uzochukwu, Onwujekwe, Ezuma, Ezeoke, Ajuba, & Sibeudu, 2011). Relevant studies recommend more effective training, BCC, and advocacy through key community influencers in order to overcome health care worker skepticism of RDT results.

In the private sector, the lack of availability of RDTs and the inability of PPMVs to appropriately use them equally hampers correct diagnosis, leading to either overconsumption of ACTs or the inability to diagnose other health issues.

2.3.2.4 Pneumonia-specific supply barriers**Public & private sector – Lack of knowledge on pneumonia diagnosis and limited availability of job aides and skills**

A diagnosis of pneumonia is required for the prescription of antibiotic treatment. In resource-limited settings, it is virtually impossible to secure an etiological identification of the cause of respiratory infections. However, clinical pneumonia can be diagnosed with 80% sensitivity by measuring a patient's respiratory rate against WHO-defined criteria (World Health Organization, 1981).

Unfortunately, providers are often not trained on how to properly diagnose pneumonia and may not have the proper equipment to measure a respiratory rate (using a simple respiratory rate timer). An additional complication is the prevalence of

Federal Ministry of Health/National Primary Health Care Development Agency - Essential Childhood Medicines Scale-up Plan
 diagnostic overlap: pneumonia often presents with fever—which is equated with malaria—and may result in a child receiving an antimalarial but not an appropriate antibiotic.

Public sector – CHEWS not trained and equipped to treat pneumonia at the community level

Community case management (CCM) of pneumonia has been associated with a 35-36% impact on under-five mortality from pneumonia (Sazawal & Black, 2003). Yet as indicated above, only a very small proportion of CHEWs are trained in ICCM and, specifically, pneumonia case management. In addition, CHEWs are currently not equipped to prescribe antibiotics and have limited ability to make appropriate referrals.

3. CURRENT MOH/PARTNERS' EFFORTS AND IDENTIFICATION OF PRIORITY AREAS

Table 4: Summary of current efforts.

	Patient	Public provider	Private provider
Cross-disease	<ul style="list-style-type: none"> BCC/IEC through ICCM (Planned/ under initiation) and VoA Community-based IMCI initiatives 	<ul style="list-style-type: none"> IMCI training for CHEWs Standalone programs deliver some commodities Recruiting health workers through the MSS and CHEW recruitment DRFs (State-specific) 	<ul style="list-style-type: none"> Training and support for retailers (Malaria ONLY)
Diarrhea	<ul style="list-style-type: none"> UNICEF OR community awareness (14 states ended, 4 planned)(part of community-based IMCI) 	<ul style="list-style-type: none"> UNICEF OR for public sector supply (14 states ended; 4 planned) Limited distribution through MNCHW 	<ul style="list-style-type: none"> ESPMIN UNICEF OR for public/private supply (4 states planned)
Malaria	<ul style="list-style-type: none"> AMFm IEC and social marketing campaign 	<ul style="list-style-type: none"> Limited RDT roll-out AMFm ACT subsidy Improved supply chain management for ACTs/Artesunate Training on signs of complicated malaria 	<ul style="list-style-type: none"> AMFm ACT subsidy Improved ACT forecasting National IEC/BCC campaign Some AMFm supplier promotion
Pneumonia	<ul style="list-style-type: none"> ICCM development Community-based IMCI initiatives 	<ul style="list-style-type: none"> ICCM development Prevention/protection IMCI Case Management 	<ul style="list-style-type: none"> None

3.1 Current priorities and efforts of MoH and other partners

3.1.1 Cross disease efforts

Nigeria's Integrated Maternal Neonatal and Child Health (IMNCH) strategy lays out the framework within which Maternal, Newborn and Child Health (MNCH) interventions are implemented in the country and articulates seven main objectives for improving maternal, neonatal, and child health in Nigeria (summarized below). The main platforms for achieving these objectives are the broad, health-systems strengthening efforts of IMCI and ICCM.

Figure 3: Goals and Objectives of the IMNCH strategy.

Goal: to reduce maternal, neonatal and child morbidity and mortality in line with the UN MDGs 4 and 5

1. Improve access to good quality health services
2. Ensure adequate provision of medical supplies, drugs, and other basic equipment
3. Strengthen individual, family and community capacity to take necessary MNCH actions at home and to seek healthcare in a timely manner
4. Improve capacity for organization and management of MNCH services
5. Establish a financing mechanism that ensures adequate funding, affordability, equity and efficient use of funds from the various sources
6. Strengthen supervision, monitoring and evaluation systems to report on progress towards achieving the maternal and child health MDGs
7. Establish & sustain partnerships to support implementation of IMNCH strategy

The National Primary Health Care Development Agency (NPHCDA) is leading the development of an **Integrated Community Case Management (ICCM)** program at CHEW-level to treat childhood illnesses, with part of the objectives being to increase the proportion of children under five with diarrhea, malaria, or suspected pneumonia receiving ORS and zinc, ACTs, or antibiotics—respectively—by 2015. Current plans for the rollout of ICCM include the recruitment and training of 150,000 community health workers nationwide by the end of 2013.

In addition, the Government of Nigeria is actively rolling out the **Integrated Management of Childhood Illnesses (IMCI)**. Key components of the IMCI strategy are to improve health worker skills through continuous training, ensure availability of IMCI drugs, and enhance care-seeking and treatment adherence among communities. The strategy has been rolled out in 36 out of 37 states, yet the coverage within states is limited to a few LGAs. Hence, actual rollout of the IMCI components and interventions continues to be a gap.

To address these challenges, efforts have been made to harmonize existing child health strategies and training guidelines for implementation, including IMCI, IMNCH, the National Action Plan for the Prevention and Control of Pneumonia (NAPP), Home Management of Malaria (HMM) and the Ward Minimum Health Care Package (WMHCP). Another specific effort to address the high need for qualified staff is to increase the number of health workers through the Midwives Services Scheme (MSS) and intensified CHEW recruitment.

3.1.2 Diarrhea efforts

In the area of improving access to appropriate diarrhea treatment, fairly little effort has been seen to date, in spite of zinc and ORS being incorporated in the national treatment guidelines as the recommended treatment for diarrhea. The most important activities to date have been a UNICEF-led **operations research** study in twelve states, covering three LGAs in each state, in order to assess the effectiveness of improving community awareness and public-sector supply as an intervention to increase uptake of zinc and ORS. While this activity has since ended, a second operations research is currently planned for implementation in four southern states beginning in 2012.

3.1.3 Malaria efforts

In the area of improving access to prompt and effective treatment of malaria, the **National Malaria Strategic Plan (NMSP)** sets a target of 80% coverage with appropriate malaria treatments and aims to reduce malaria-related mortality by 50%. The NMSP specifies three main areas of intervention to achieve these goals:

1. **Scale up access to ACTs:** A key element to ACT scale-up has been the introduction of the AMFm co-paid ACTs. Under this program, access to affordable ACTs has been enhanced both in public and private health facilities since co-paid ACTs first arrived in-country in January 2011. Also, investments have been made in IEC/BCC campaigns to increase both caregiver and provider awareness of the availability of affordable ACTs. However, rollout of these campaigns has been slower than anticipated. Another barrier to access addressed under the AMFm program is improved supply chain management at the Central Medical Stores.
2. **Scale up of home management of malaria (HMM):** As access to appropriate and effective treatment of malaria should be provided within 24 hours of the onset of symptoms, home management of malaria is a priority, particularly in poor rural areas that are inadequately served by the health system. HMM is currently being carried out in pilot projects with Role Model Mothers in the public sector and PPMVs in the private sector who have been trained on malaria case management. To date, HMM has been rolled out in 30 states with the training of 6,382 role model caregivers.

3. **Parasite based diagnosis using RDT:** Currently, efforts are being intensified to rapidly expand access to RDTs to improve the differential diagnosis of fever and reduce the unnecessary consumption of antimalarials. RDTs will be carried out by all health care providers in primary, secondary and tertiary health facilities, but must be followed up by regular supervision.

Other partners are also pursuing efforts to improve malaria case management. Regarding communication around malaria, USAID provides funds to the Voice of America (VoA) Hausa language broadcast for a variety of health messages. This reaches about 23 million listeners and includes malaria messages, such as the need to use ACTs for malaria treatment. The Expanded Social Marketing Project In Nigeria (ESMPIN), the Targeted States High Impact Project (TSHIP), and the Malaria Action Plan for States (MAPS) have rolled out media and community based education efforts around malaria treatment. In addition, USAID procures ACTs and RDTs and supports TSHIP, MAPS, and ESMPIN for distribution and social marketing efforts. The Society for Family Health is providing extensive training for private providers in malaria.

3.1.4 Pneumonia Efforts

Draft National Action Plan for Pneumonia

The National Action Plan for the Prevention and Control of Pneumonia in Nigeria (NAPP) has been drafted with the objective of ensuring that every child is protected against pneumonia through a healthy environment, and has access to preventive and treatment measures. The interventions laid out in the plan follow three axes:

1. **Protection from pneumonia:** Focus on exclusive breastfeeding, adequate nutrition, reducing indoor air pollution, and promotion of hand-washing.
2. **Prevention of pneumonia:** Increase vaccination coverage against measles and pertussis; introduce vaccination against pneumococcus (April 2013) and Haemophilus Influenza (April 2012). This includes targeted communication and IEC and other interventions.
3. **Treatment of pneumonia:** Simple and effective case management of clinical pneumonia at household and community levels, health center level, and hospital level. Under IMCI, most pneumonia case management would occur at the PHC level and rely on trained CHEWs, while community case management is addressed by current plans to roll out ICCM. Both of these programs are slated for scale-up.

However, as this National Action Plan is still in draft form, many of these efforts have not yet been actively rolled out and there are ongoing discussions on how to best fold these pneumonia-targeted interventions into the wider ICCM strategy. The Essential Medicines Scale-Up Plan will accelerate short-term gains in treatment coverage while providing a stronger foundation for the eventual rollout of ICCM and scale-up of IMCI called for in the NAPP.

3.2 Assessment of Main Gaps

While there are variations between disease areas, there are number of common themes that emerge from this analysis of barriers. First, while national strategies to improve ICCM have been developed, large-scale rollout will be insufficient to achieve the desired short-term impact needed to achieve MDG4. Second, inconsistent supply of key treatments and other products through the public sector due to forecasting, supply chain, and decentralized procurement challenges is a major impediment to the effective treatment of all three conditions.

Third, with the exception of malaria, limited attention has been paid to date to the private sector as an important point of access for treatment. Particularly for diarrhea, there is a major untapped opportunity to expand access to effective treatments by increasing the availability and affordability of zinc and ORS in the private sector.

Lastly and most importantly, awareness of and demand for appropriate treatments among both caregivers and health providers is likely the greatest barrier across all three conditions.

4. TARGETED INTERVENTIONS

4.1 Vision and Objectives

In 2007 and 2008, Nigeria finalized the National Maternal, Neonatal, and Child Health Strategy and the National Strategic Health Development Plan, respectively. These two documents—which constitute the overarching framework within which the Essential Childhood Medicines Scale-up Plan functions—identify several key goals for improving health outcomes for Nigerians and their children:

- Revitalize integrated service delivery towards quality, equitable, and sustainable healthcare by ensuring universal access to an essential package of healthcare, increasing access to health care services, and increasing demand for health care services;
- Attain effective community participation in health development and management as well as community ownership of sustainable health outcomes by strengthening community participation, empowering communities with skills for positive health actions, and strengthening community-health services linkages.
- Reduce maternal, neonatal, and child morbidity and mortality by improving access to good quality health services, ensuring adequate provision of medical supplies, strengthening individual, family, and community capacity to take necessary MNCH actions and seek healthcare in a timely manner, and establishing and sustaining partnerships to support the implementation of the IMNCH strategy.

In line with these goals—and in recognition of the significant morbidity and mortality burdens represented by pneumonia, malaria, and diarrhea in Nigeria—the Essential Childhood Medicines Scale-up Plan seeks to dramatically accelerate progress on improving child health outcomes in Nigeria by 2015. Specifically, this scale-up plan focuses intensive efforts on rapidly increasing access to existing treatments for these three conditions. To achieve this, targeted interventions have been identified for both the public and private sector.

With implementation guided by the core principles of equity and integration, and focused on Community and Primary health-care delivery platforms, the objectives of Nigeria’s Essential Childhood Medicines Scale-up Plan are the following:

1. Increase access to diarrhea treatment and management for children under five by scaling up the use of low osmolality ORS and zinc from the current levels to 80% by 2015.
2. Increase access to effective pneumonia treatment using amoxicillin for children under 5 from the current levels to 80% by 2015.
3. Increase prompt access to malaria treatment using ACTs for uncomplicated malaria and intravenous artesunate for severe malaria from the current levels to 80% by 2015.
4. Improve the early recognition of symptoms and correct diagnosis of malaria, pneumonia, and diarrhea by health workers and caregivers from the current levels to 80% by 2015.
5. Increase participation of the private sector to meet and promote demand for the core commodities for the treatment and appropriate management of malaria, pneumonia and diarrhea.

4.2 Program Overview

As discussed above, the primary barrier to achieving wide coverage of effective treatments for diarrhea, pneumonia, and malaria are the behaviors of caregivers vis-à-vis care-seeking and treatment preferences for childhood illnesses. These behaviors and preferences, in turn, are influenced by an array of factors—which vary to some degree according to the specific illness—including cultural constructions of illness, the cost of competing treatments, and the availability of both commodities and sources of care.

Moreover, although the severity and relative contribution to poor access of these barriers varies by region in Nigeria, their presence and importance on a national scale cannot be denied. The effective implementation of this scale-up plan necessitates that interventions be implemented with an appreciation of—and adaptation to—regional and local contexts. National-scale interventions, however, must take a prominent position within any attempt to catalyze an urgent and dramatic transformation of the country’s health outcomes.

The package of interventions described in this section aims to rapidly transform the treatment landscape for diarrhea, pneumonia, and malaria in Nigeria by addressing the primary precipitants of poor care-seeking and the low use of appropriate treatments. To achieve this goal, four broad themes for action have been identified with key interventions under each:

I. Generate Demand and Promote Care-Seeking

- Conduct a national action campaign for child health—leveraging mass media, key opinion leaders, and free sample distribution (*diarrhea, malaria, pneumonia*)

Using a National Action Campaign for Child Health—incorporating mass media messaging and health diplomacy through national and community opinion leaders—to address caregiver perceptions and preferences will dramatically increase immediate care-seeking. This will lead to increases in treatment coverage for all three diseases in the short-term, but for diarrhea and malaria in particular, it will also improve the competitiveness of private-sector markets, leading to downward pressure on price and providing increased incentives for expanded distribution.

II. Improve Availability and Use in the Public Sector

- Leverage existing central supply chains to increase public-sector availability (*diarrhea*)
- Improve knowledge and skills of PHC staff to increase use of appropriate treatments (*diarrhea, malaria, pneumonia*)
- Support increased procurement of essential medicines at state and local levels (*diarrhea, malaria, pneumonia*)

The availability and use of treatments in public primary facilities is a major barrier for the 26% of Nigerians who utilize these facilities for the treatment of childhood illnesses. By leveraging vertical supply chains to reach linked PHCs with essential medicines and to strengthen decentralized distribution to the remainder of public facilities, rapid improvements in essential medicines availability can be made. Moreover, effective treatment for childhood illnesses requires that health workers be equipped to use available treatments. By improving knowledge dissemination from key opinion leaders and providing novel support structures for primary health workers, rapid improvements in provider behavior are possible.

III. Improve Affordability

- Encourage production of affordable, high-quality ORS and zinc (*diarrhea*)
- Identify and support actions to reduce the cost and price of zinc and ORS (*diarrhea*)

Specifically in the case of diarrhea treatment, access to ORS and zinc is constrained by unaffordable treatment prices. By demonstrating these products' market potential and working with suppliers to reduce costs, significant and rapid reductions in retail price are possible.

IV. Transform the Private Sector Retail Landscape

- Continuous education of private retailers (*diarrhea, malaria*)
- Facilitate supplier marketing to boost retail sales of zinc and ORS (*diarrhea*)

For malaria and diarrhea, private sector retailers represent important and legitimate sources of appropriate treatments—and are an important first contact for pneumonia. By creating formal structures for education and advocacy among private retailers and facilitating efforts to incentivize appropriate treatment practices, these providers can be mobilized to immediately increase rates of appropriate treatment among the large population of caregivers that prefer them as a primary source of care.

Just as the major factors affecting care-seeking behavior and treatment preferences exert their effects through a complex interplay, the impact of interventions across these four themes will depend on the degree to which successful synergies are achieved during their implementation.

Specifically for diarrhea, this package of interventions is intended to transform the market space for zinc and ORS and end the market failure that currently restricts access to these treatments in Nigeria. Public-sector efforts, including supplier engagement and increased procurement, will serve to anchor demand for these products as efforts to increase care-seeking, improve affordability, and facilitate retailer-driven promotion will stimulate the market. As demand grows, a competitive and sustainable landscape for zinc and ORS will be catalyzed in which market potential will drive suppliers' investments in production and promotion. This transformation will be aided by the introduction of co-packaged zinc and ORS products, which will increase uptake of both treatments and also facilitate enhanced marketing around a novel diarrhea treatment.

While the availability and affordability of appropriate treatments is a primary concern for malaria and diarrhea, prompt, effective treatment of pneumonia requires its immediate recognition and diagnosis. Increasing rates of care-seeking, awareness of key symptoms and danger signs, and knowledge of appropriate treatments—both among caregivers and their preferred providers—is therefore the focus of efforts to scale-up appropriate pneumonia treatment.

4.3 Timeline of Interventions

		2012			2013				2014				2015			
		Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Intervention 1 - National Action Campaign for Child Health																
Activity 1.0	Knowledge, Attitudes, and Practices Study															
Activity 1.1	Mass Media - Radio Campaign															
Activity 1.2	Mass Media - SMS Campaign															
Activity 1.3	Mass Media - Television and Movies															
Activity 1.4	Identify Target Groups and Recruit Key Opinion Leaders															
Activity 1.5	Rapidly Disseminate Messaging															
Activity 1.6	Free Sample Distribution															
Intervention 2 - Leverage Existing Central Supply Chains to Increase Public-Sector Availability																
Activity 2.1	Map Existing Supply Chains															
Activity 2.2	Quantify and Procure Commodities															
Activity 2.3	Distribute and Track Commodities															
Activity 2.4	Mobilize Communities Linked to Supplied PHCs															
Activity 2.5	Assess potential for Supply Chain Integration and Strengthening															
Intervention 3 - Improve Knowledge of PHC Staff to Increase Use of Appropriate Treatments																
Activity 3.1	Review and Develop Training Modules and Job Aides															
Activity 3.2	Targeted IMCI Training and Job Aide Delivery															
Activity 3.3	National SMS Reminder System															
Activity 3.5	Health Worker Advocacy Campaign															
Activity 3.6	Train Health Workers through Child-Health Platform Scale-Up															
Intervention 4 - Support Increased Procurement of Essential Medicines at the State and Local Levels																
Activity 4.1	Strengthen Facility-Level Procurement															
Activity 4.2	Advocate for Increased State and Local Procurement															
Intervention 5 - Encourage Production of Affordable, High-Quality ORS and Zinc																
Activity 5.1	Facilitate Entry of Qualified Suppliers and Affordable Zinc and ORS															
Activity 5.2	Establish Co-Packaged Products as Government Standard															
Activity 5.3	Establish Private-Sector Forum for ORS and Zinc Suppliers															
Intervention 6 - Identify and Support Actions to Reduce the Price of Zinc and ORS																
Activity 6.1	Identify Opportunities to Reduce Price of Essential Medicines															
Activity 6.2	Implement Cost- and Price-Reduction Measures															
Activity 6.3	Pursue Regulatory Changes Necessary to Ensure Affordability															
Intervention 7 - Continuous Education of Private Retailers																
Activity 7.1	Integrate Knowledge Modules into Retailer Orientations															
Activity 7.2	Support Advocacy through State and Local NAPPMED Chapters															
Activity 7.3	NGO-Facilitated Detailing and Promotion															
Activity 7.4	Facilitate Direct, Sustainable Relationships with Suppliers															
Intervention 8 - Facilitate Supplier Marketing to Boost Retail Sales																
Activity 8.1	Incentivize Large-Scale Consumer Marketing Programs															
Activity 8.2	Develop and Disseminate Open-Access Marketing Materials															
Activity 8.3	Share Results of Regular Price, Availability, and Demand Surveys															

Figure 4: Timeline of interventions and activities. (Shading represents scale-up/intensity.)

4.4 Detailed description of targeted interventions

I. Generate Demand and Promote Care-Seeking

As discussed in section 2, several important barriers currently constrain patient demand for appropriate and immediate treatment—leading to unnecessary child deaths. This lack of demand not only leads to premature child deaths, but it also reinforces the limited availability and affordability of recommended treatments in the private sector as the establishment of a competitive, sustainable market typically develops only in the presence of strong demand. Thus, building consumer demand is a core component of Nigeria’s strategy to overcome this “market trap”—especially for zinc and ORS.

Preferences for alternative treatments exist in part because appropriate treatments are unaffordable, and interventions designed to increase the affordability of essential medicines (described below) are expected to impact consumer preferences and demand to some degree. However, poor care-seeking behavior and preferences for alternative treatments are also influenced by a combination of low awareness—both of danger signs in childhood illnesses and appropriate treatments—and local cultural perceptions of childhood illnesses and therapies (both traditional and allopathic).

In order to significantly shift caregivers’ behaviour and preferences, a package of demand generation activities is proposed both at national and community level. Specifically, these interventions will deliver integrated child-health messaging to achieve three primary objectives:

- Change caregivers’ perceptions of common childhood illnesses in order to increase immediate care-seeking for pneumonia, malaria and diarrhea (*cross-disease*)
- Improve awareness and usage of zinc and ORS as the appropriate treatment (*diarrhea-specific*)
- Improve recognition of fast-breathing as an important symptom of pneumonia (*pneumonia-specific*)

The diversity of the Nigerian population means the efficacy of messages and delivery channels vary across population groups. This campaign will therefore seek to combine national outreach to a broad audience with targeted, community-based approaches to anchor more nuanced messaging within local contexts and leadership. Messages will target caregivers as well as providers and retailers and will leverage data from existing knowledge, attitudes, and practices (KAP) studies. Where additional data is needed, a further KAP study will be conducted to inform the most efficacious messages and channels to reach target audiences. These studies will play an important role in determining the operational details and priorities for the activities described below.

Overall, campaign communication efforts will leverage creative and strategic approaches to health behaviour change and will be led by a competitively-selected communications firm. One of the key selection criteria will be prior proven results in driving significant, large-scale changes in consumer awareness and product usage. A small taskforce, led by the government and with participation from public and private sector stakeholders, will conduct the selection of the communications firm and will provide oversight and guidance to the execution of activities. In particular, this taskforce will help to ensure that activities are timely and coordinated with the other interventions outlined in this strategy. The taskforce will also ensure that the communications firm has a robust approach to measuring the effectiveness of the campaign at regular intervals, leveraging qualitative and quantitative indicators, such that course adjustments can be made on an ongoing basis to maximize impact. Additional actors may be engaged by the task force to support the implementation of specific activities where expertise is needed.

Intervention 1 (National): National Action Campaign for Child Health.

In order to substantially drive care-seeking for diarrhea, pneumonia, and malaria and actual demand for zinc and ORS, a National Action Campaign for Child Health will be launched, with the objective of reaching a national audience with simple, consistent messaging around care-seeking and treatment.

This campaign will consist of three components: (a) mass media messaging, (b) engaging opinion leaders through a cascade of health diplomacy, and (c) free sample distribution through MNCH Weeks. Standardization of materials and messages in the National Action Campaign will be sought in order to enhance recognition of important health messaging, but regional differences in health behaviours will be taken into account during advocacy and outreach where possible.

On a longer timeline, the combined efforts of these specific activities may form a strong foundation for the development and expansion of messaging around a wider set of high-impact child health concerns on a national level.

a) Mass Media Messaging

Objectives:

- Reach at least 75% of the population with 3 targeted, simple, stand-alone messages: (a) Seek care immediately when your child is ill; (b) Fast-breathing is a symptom of pneumonia, which can be deadly; and (c) Treat diarrhea with zinc & ORS within the first twenty-four hours.
- Where possible, leverage high-impact channels at low cost by establishing public-private partnerships (i.e. with telecoms firms, film and TV production houses, etc).

Rationale:

The target coverage levels of 80% dictate the need for interventions that reach a large majority of the population in a short timeframe. The size and distribution of Nigeria's population limits the operational and financial feasibility of large-scale rollout of more targeted interpersonal communication interventions. A mass media campaign is therefore the most feasible mechanism through which to reach a large proportion of the population. When effectively designed and implemented, mass media can achieve dramatic changes in health behavior in a very short time. For example, Egypt's mass media campaign for ORS led to an increase in actual uptake from 1% to 70%, in just two years (Hirschhorn, 1985). Also, in Nigeria, the potential for change through mass media campaigns was illustrated by the success of safe-sex campaigns from late 1998 to 2001—which precipitated an increase in condom use at last sexual encounter from 42% to 61% in men and from 35% to 60% in women (Meekers, 2004).

Mass media messages will be delivered through high-yield and high-impact communication channels specific to target audiences identified by KAP studies and will aim to leverage private-sector partnerships in order to be as cost-effective as possible. In addition, a mix of mediums will be pursued to ensure that both urban and rural populations are reached to the greatest extent possible and existing messaging platforms will be built on to ensure consistent messaging. The channels as proposed below are estimated to be able to reach over 75% of the population and, given high penetration of radio and GSM (Global System of Mobile operators), these channels have a strong potential of reaching a significant proportion of rural populations. Moreover, national messaging will be developed in Nigeria's three main local languages (Igbo, Hausa, and Yoruba) in addition to English and Pidgin in order to have the greatest possible reach. State engagement will be pursued to adapt messaging into additional, local languages.

Activities:

- i) **Radio campaign:** Radio advertising campaigns will be developed consisting of short, daily advertisements featuring regional opinion leaders during popular programming and tailored to regional circumstances. In addition, partnerships with radio production houses will be pursued to incorporate messaging into popular serial dramas in order to reach large swathes of the population through existing platforms. Radio is a proven, low-cost communication means in Nigeria—especially in rural areas—and has the potential to reach at least 75% of the population.
- ii) **Mass SMS:** Partnerships will be sought with leading telecoms providers to set up regular SMS-campaigns to mobile subscribers. After Nigeria's recent SIM-card registration effort, telecom providers have specific consumer data that can be leveraged to send tailored messages to a range of target groups. Given the current penetration of GSM services, this initiative would reach up to 56% of the population (International Telecommunication Union, 2009) with simple messages tailored to specific demographics. SMS messaging is likely most effective for the least complex messages (promoting immediate care-seeking and zinc & ORS as diarrhea treatment) and messages could refer to sources of further information.
- iii) **Television and Movies:** Partnerships with television and movie (Nollywood) production houses will be pursued to ensure that situational explanations and product placements for child health issues are incorporated into popular programs and movies. Personality branding using appropriate, popular figures will also be pursued through this medium. Given the opportunity to visualize key issues, this channel will be particularly helpful in demonstrating the symptoms and danger signs of childhood illnesses—such as fast-breathing for pneumonia. Moreover, situational illustrations can also demonstrate the consequences of late or inappropriate care-seeking. Additionally, the cost-effectiveness of developing short (30-60 second) television advertisements to deliver simple messaging during

popular programs will be considered if formative research indicates the potential to deploy them at low-cost and high-reach.

b) Engage opinion leaders through a cascade of health diplomacy

Objective:

- Leverage influencing power of key opinion leaders to:
 - Change caregiver perceptions and preferences through a cascade of health messaging.
 - Change prescriber/provider practices in both public and private sectors.

Rationale:

Especially in Nigeria's north and rural areas, populations are particularly cognizant of recommendations and advice from key opinion leaders and culture plays an important role in health-seeking behaviours. Traditional and religious leaders—as custodians of local culture—are therefore strong potential allies for influencing caregiver preferences. Civil society, trade, and women's groups are also influential community components in this regard.

Communication through these opinion leaders can be particularly effective in changing consumer and provider behaviour. For instance, communication interventions focusing on engaging key opinion leaders have proved effective in the effort to eradicate polio in Nigeria: beginning with the recruitment of HRH Sultan of Sokoto, the mobilization of traditional leaders, and the Federation of Muslim Women Association of Nigeria, a 2008 campaign led to a 95% decrease in polio cases in Nigeria within a single year (Center for Disease Control (CDC), 2011) (Center for Disease Control (CDC), 2010).

Activities:

- i) **Identify priority target groups and influence networks:** Priority opinion leaders that will be evaluated for inclusion in this activity are (a) traditional, religious, and political leaders through established hierarchies and (b) teachers, community health workers, traditional birth attendants, and women and youth leaders through national associations. The Government of Nigeria and its partners will conduct a review of previous and current community awareness campaigns in order to identify relevant opinion leaders. KAP findings will also influence the selection of opinion leaders and influence networks to be engaged at the national level.
- ii) **Recruit Key Opinion Leaders (KOLs):** The government and its partners will approach identified opinion leaders to secure their acceptance of key messages and the urgency of the campaigns. Opinion leaders will be equipped with messaging materials and will be supported to develop and employ strategies for rapidly disseminating messages through their spheres of influence. High-profile, national KOLs will also be recruited for the development of mass media messaging through this effort.
- iii) **Rapidly Disseminate Messaging:** Nigeria will pilot the use of FastTrack to accelerate the establishment of a cascade of health messaging through key opinion leaders. FastTrack (FT) is a team-based change acceleration method to achieve quantifiable, time-bound (90-day) goals. As part of this intervention, a small-scale pilot will be developed to identify key issues prior to large-scale roll-out and a selected group of FastTrack experts will be trained to ensure in-country capability to apply FastTrack in follow-up initiatives.

c) Free sample distribution of zinc & ORS through MNCHWs

Objectives:

- To increase familiarity with zinc and ORS as an effective treatment for diarrhea.
- To facilitate a shift in caregiver preferences toward zinc and ORS by triggering first usage.
- Direct caregivers to public and private providers for further supply to stimulate a sustainable market for the products.

Rationale:

While many care-seekers are familiar with ORS, most are unfamiliar with zinc; they are not aware of its benefits in diarrhea treatment and how it compares to antibiotics and other alternative treatments. Free sampling has proven to be an effective instrument in raising awareness around new products, as consumers need 'real experience' to be able to evaluate whether a product meets their needs: Over 83% of caregivers who use zinc for diarrhea indicate that they would use it again and preliminary findings from a free distribution pilot of ORS and zinc in Kisumu, Kenya showed usage levels over 60% (while incorrect usage was less than 0.2%) (Nasrin, Larson, Sultana, & Khan, 2005) (Feikin D, 2011).

MNCH weeks are popular, well-attended events that are conducted biannually at national scale. The purpose of these events is to increase awareness of maternal and child health issues. Free sampling through MNCH weeks will be a platform for quickly raising awareness and acceptance of zinc and ORS as a “new, improved” combination diarrhea treatment.

The overall scale, duration, location, and other logistics of the sample distribution will be determined as a part of the planning process for the MNCH weeks. However, it’s important to note that decisions around the scope and duration of free distribution will be informed by both public and private stakeholders to ensure maximum efficacy and coordination. It is important to note, however, that these distributions are intended to be time-limited demand generation activities. Moreover, monitoring of distributions will be undertaken to facilitate equitable distribution and coverage. Additional platforms for distribution—such as routine immunization—will be pursued if and where necessary to achieve this goal.

Activities:

- i) **Logistical Preparation:** Logistical preparation for the distribution of zinc and ORS during MNCH weeks will be incorporated into the planning process for the second round of MNCH weeks in 2012 (historically taking place in the 4th quarter). During this phase, baseline uptake will be reviewed for covered localities and quantifications carried out to determine the amount of zinc and ORS needed in each locality. Modules on the use of zinc and ORS will be included in trainings given to outreach personnel as a part of regular MNCH week implementation.
- ii) **Distribution:** MNCH weeks currently act as vehicles for the distribution of selected maternal and child health commodities (i.e. vitamin A, vaccines, etc.) using a combination of an NPHCDA-managed national supply chain and NGO-managed distribution. These distribution methods will be employed to include the distribution of zinc and ORS to at least 3.1 million children with diarrhea in each round of implementation.

II. Improve availability and use in the public sector

The public primary healthcare system represents an important source of care for Nigerians. However, delivery of appropriate treatments in this sector is often limited by a lack of available treatments and—to a lesser degree—poor practices among primary providers. Opportunities exist in the short-term to improve the availability and use of essential medicines within a significant proportion of primary healthcare facilities. Especially in the north, where nearly 30% of caregivers seek care for childhood illnesses in public facilities (as opposed to 27% in the private sector), pursuing these opportunities is necessary to achieve aggressive scale-up.

For diarrhea, consistent and large procurements of zinc and ORS for the public sector would provide an anchor for the zinc/ORS supply chain in Nigeria. A significant increase in public sector purchasing of the products would encourage increased supplier investment and potentially lead to lower prices through volume-based efficiencies. Moreover, immediately improving the reliability of supply to targeted primary healthcare facilities will help change public-sector provider practices and spur increased consumer demand.

Combining increased availability of commodities with behavior change for providers in the short-term has the potential to dramatically improve outcomes for Nigerians who access these facilities. These short-term efforts could be built upon by longer-term systems improvements to further expand availability and appropriate use within the public sector.

Improved procurement for low-cost essential medicines, such as zinc and ORS, will also help shift the essential medicines procurement landscape away from donor-funded and managed procurement systems—which primarily source commodities directly from international suppliers, thereby undermining local market potential—toward local procurements. Over time, this will encourage local production and improve sustainability and affordability within the public-sector supply chain.

Intervention 1 (Targeted): Leverage existing central supply chains to increase public-sector availability.

Objective:

- Increase the proportion of primary health centers with a reliable supply of essential medicines for pneumonia, diarrhea, and malaria.

Rationale:

Centrally operated, vertical supply chains currently supply a subset of primary health facilities with commodities for routine immunization, tuberculosis control, and reproductive health. For instance, the MSS currently secures reproductive health commodities for 1,000 PHCs and the vaccines supply chain provides over 3,000 PHCs with routine immunization commodities. While challenges exist for supply chain management even within these distribution systems, they also represent a salient opportunity to quickly improve the availability of essential medicines in the public sector.

While these PHCs currently represent only 16% of public facilities nationally, the routine immunization and reproductive health programs are continuing to expand their reach and are likely to have much greater penetration in the medium- to long-term. Additionally, improved access to essential commodities even at a modest number of PHCs can lead to a boost in coverage. For example, an operations research study implemented by UNICEF in 14 Nigerian states in 2007-2008 reached an estimated 12% of all children in the study areas with ORS and zinc for the treatment of diarrhea through a combination of basic community sensitization and ensuring commodity supply in a subset of PHCs.

PHCs will be targeted for supply based on the outcomes of supply chain mapping assessments, with a target reach of at least 3,000 PHCs by the end of 2013. This intervention will be phased to roll out to PHCs in all 37 states by the end of 2013. However, initial rollout will target high-burden states with high rates of care-seeking in the public sector in order to maximize initial impact. In terms of staging, this intervention will begin by incorporating zinc and ORS in the first year, due to their relative lower availability in the public health sector and long shelf life. ACTs and pneumonia antibiotics will be integrated in subsequent years based on levels of need revealed by operational assessments.

To support this intervention, Government will work closely with private-sector suppliers to provide information on the size and schedule of procurements, thereby working to coordinate increases in production capacity to meet public-sector demand. Moreover, Government—through the National Agency for Food and Drug Administration and Control (NAFDAC) and Federal Ministry of Health—will release guidance on standard product specifications public-sector procurements.

Activities:

- i) **Map existing supply chains:** A review and mapping exercise to identify functioning central supply chains and connected PHCs will be performed to identify opportunities for centrally-driven distribution of essential medicines. This exercise will assess overlaps, distribution capacity, reliability, and PHCs reached of the candidate supply chains in order to inform the selection of supply chains for distribution of essential medicines.
- ii) **Centrally quantify & procure commodities:** Quantification of need for essential medicines at targeted PHCs will be performed based on available regional and local care-seeking, usage, catchment, and existing stock data. This quantification will form the basis for federal procurements for essential medicines through NPHCDA and the Federal Ministry of Health (as appropriate for the supply chains utilized). Quantifications will be based on best practices and lessons learned from Nigeria and other countries and will be regularly reviewed and adjusted based on actual consumption at target facilities to minimize stock-outs and inefficiency.
- iii) **Distribute and track commodities:** Procured essential medicines will be pushed to facilities with normal commodities shipments, and the specific distribution details will be tailored to the operations of each individual supply chain and location. Efforts to ease the burdens posed by the additional commodities will be pursued during implementation, such as bundling essential medicines into packs or kits with other commodities. Simple stock management tools and training—including basic forecasting and quantification—will be provided to PHC staff (as a part of trainings described under intervention 2 below) and partnerships pursued to expand and improve SMS stock management and reporting systems (e.g. RapidSMS, currently being deployed by NPHCDA).
- iv) **Mobilize communities linked to supplied PHCs:** In order to improve community awareness and encourage uptake, local messaging and advocacy packs tailored to regional findings will be developed, and PHC staff will be supplied with and trained on advocacy materials as a part of the training provided under Intervention 2 below. Local community leaders will be engaged by PHC staff through ward and village development committees in areas with PHCs targeted for central supply with the aim of recruiting community leaders to support uptake of appropriate treatments.
- v) *[Link to Long-term]* **Assess potential for further supply chain integration and strengthening:** Introduction of additional commodities to these supply chains may occur in a step-wise manner after evaluating their strengths and capacity vis-à-vis distribution of essential medicines. Integrated, national stock management tools based on the federal EML should be developed in the medium-term to simplify PHC-level management and allow for

harmonized procurement and forecasting across supply chains. Moreover, the potential for a Procurement and Supply Management working group for essential commodities to drive pooled procurement at the state and federal levels will be explored.

Intervention 2 (Targeted and National): Improve knowledge and skills of PHC staff to increase use of appropriate treatments.

Objective:

- Increase knowledge and skills of public-sector health workers in the management of diarrhea, pneumonia, and malaria.

Rationale:

Although thirty-six states are currently implementing IMCI, coverage within these states is limited to only a few LGAs. Full implementation of ICCM is currently awaiting the completion of fully integrated guidelines and materials. As such, the coverage of training on standard treatment guidelines is low and the availability of job aides limited. Moreover, training itself is not often enough to ensure providers adhere to appropriate practices. More creative and consistent behavior change methods are needed on a national level in order to promote a permanent shift in health worker practices.

For primary facilities linked to targeted central supply chains, intensive training efforts will be carried out to ensure maximum use of centrally provided supplies. The training of health workers from additional health facilities will be carried out in the medium- and long-term under efforts to scale-up IMCI and ICCM implementation. However, efforts to influence the practices of these health workers will be undertaken at the national level through the creation of advocacy and support structures for primary health workers.

Activities:

- i) **Develop and disseminate updated training modules and job aides:** Existing training modules, guidelines, and job aides (e.g. IMCI) will be reviewed and updated as necessary for the management of diarrhea, pneumonia, and malaria—including simple tools for differential diagnosis and treatment (e.g. GSM-based diagnostic assistant programs). New modules and job aides will be included in existing and planned child health platforms (e.g. ICCM) where appropriate. Up-to-date curricula will also be incorporated into existing pre-service training programs to ensure that newly trained health workers enter their field with instruction in appropriate practices.
- ii) **Targeted training of staff in IMCI and provision of job aides:** Training and materials on IMCI and supplementary job aides for diarrhea, pneumonia, and malaria will be provided for staff at supply-targeted PHCs (under Intervention 1 above) to reinforce their skills and encourage the use of appropriate treatments. Trainings will be conducted in facilities, as they are included in central supply efforts, with a target reach of at least 3,000 facilities by the end of 2013. Supply-targeted PHC staff will also be given training and materials for stock management and reporting as well as local advocacy in order to facilitate community engagement efforts outlined under Intervention 1 above. Additionally, Oral Rehydration Therapy (ORT) corners will be established in supply-targeted facilities in a phased manner to provide areas for health workers to demonstrate ORT techniques to caregivers.
- iii) **Establish national SMS reminder system for PHC staff:** Partnerships with telecoms providers will be pursued to allow for the creation of an SMS reminder system for public health workers. This system would, at a minimum, regularly remind health workers of symptoms, appropriate management techniques, and treatments for common childhood illnesses and provide sources for additional information in order to reinforce training content and further encourage appropriate practices. In the long-term, opportunities to expand the system's capacity to allow health workers to send questions on diagnosis and disease management via SMS or call centers will be explored in order to expand the existing support structures for PHC staff.
- iv) **National Health Worker advocacy campaign:** Health-worker opinion leaders—including leading representatives of paediatrician, nurse and midwifery, and community health worker associations—will be recruited and equipped with messaging materials to champion proper practices vis-à-vis the management of diarrhea, pneumonia, and malaria among primary health workers. Opinion leaders will be supported to develop and employ strategies for rapidly disseminating messages through their networks in order to influence primary-provider behaviour at a national level. High-profile KOLs will also be recruited for the development of mass media messaging through this effort. Newsletters and other methods of regularly disseminating up-to-date information on appropriate treatments will also be pursued to reinforce appropriate practices. (This activity will be rolled out as a part of the National Action Campaign described under theme III below.)

- v) *[Link to long-term]* **Train additional health workers through child health platform scale-up:** The long-term scale-up of comprehensive child health platforms such as IMCI and ICCM represents an opportunity to engage additional health workers on best practices for the management of childhood diarrhea, pneumonia, and malaria. The government of Nigeria will pursue accelerated rollout and expansion of initiatives such as IMCI, ICCM, and the MSS in the long-term with up-to-date modules and job aides on diarrhea, pneumonia, and malaria. Continued scale-up of these initiatives will benefit from the lessons learned by short-term efforts to rapidly improve treatment uptake. Efforts will be pursued in the long-term to incorporate interventions seen to have high short-term impact into these initiatives in order to increase their impact. Moreover, efforts in the medium- and long-term will be undertaken to ensure that existing stand-alone training programs target specific childhood illnesses integrate information on diarrhea, pneumonia, and malaria into their curricula.

Intervention 3 (National): Support increased procurement of essential medicines at the state and local levels.

Objectives:

- Increase the proportion of public facilities with a reliable stock of essential medicines.
- Increase the affordability of essential medicines in public facilities.

Rationale:

Recent assessments have revealed that commodity availability at the PHC level is low, with average stock-out times reaching ninety days and only about two thirds of public facilities stocking a full range of essential medicines—and only a third stocking ORS (WHO/FMoH, 2010). Medicine prices in public facilities are also high—at least twice international reference prices—and suffer from wide variation (WHO/HAI, 2006). At the same time, over 40% of primary healthcare centers procure drugs at the facility level, 33% procure drugs through their local government or PHC Management Committee, and another 10% receive drugs from state governments (World Bank, 2010). This implies that the majority of procurement for these facilities is highly decentralized and short-term efforts to improve availability must target lower levels of the health system.

Facilitating better links between primary health facilities and suppliers, while providing incentives for suppliers to reach primary health facilities, has the potential to improve the availability of essential medicines supplies in the short-term. In the long-term, efforts to promote increased investment and accountability for primary health delivery at the state and local levels are needed to ensure reliable stocks in PHCs nationwide.

Activities:

- i) **Strengthen Facility-level procurement through direct links to suppliers:** The Government of Nigeria and its partners will facilitate direct links between public facilities and suppliers/distributors – with the aim of facilitating more direct ordering and distribution in facilities using drug revolving funds or other facility-based procurement. Moreover, “reach incentives” for suppliers will be explored to reward those suppliers that are able to improve availability of commodities in targeted rural areas. Such reach incentives are employed in Australia to ensure regular commodity supplies to remote health centers and by mobile phones operators to incentivize expansion to rural areas. Reach incentives will be piloted in several high-burden states prioritized by rates of care-seeking in public health facilities and expanded to additional areas based on the success of these pilots. The implementation of this activity will be guided by the development of partnerships with suppliers and wholesalers, but will incorporate availability assessments of essential medicines in PHCs to determine which suppliers are reaching distribution targets to remote PHCs and incentivize their doing so.
- ii) *[Link to long-term]* **Advocate for increased procurement at state and local levels:** In the long-term, Nigeria’s decentralized public procurement landscape requires state and local governments to take proactive responsibility for commodity availability in most public health facilities. To this end, the Government of Nigeria and its partners will support efforts in the long-term to strengthen forecasting and distribution at the state and local levels—through the development and distribution of standard stock management and procurement guidelines—strengthen and expand drug revolving funds at the local government and facility levels, and secure dedicated state and local budgets to support facility-level procurement and supply. Moreover, the creation of a supply chain strengthening fund will be pursued in order to provide matching grants to State and local governments for supply chain improvements.

III. Improve Affordability

The affordability of medicines constitutes a significant barrier to access in Nigeria. Only 54% of Nigerians report that they are able to afford the medicines they need, and over 46% have had to borrow money or sell possessions to pay for medicines (WHO/FMoH, 2010). As described in Section 2, this problem is even more acute with regard to zinc and ORS for diarrhea treatment as prices for these treatments are several times greater than those seen on international markets. Affordability therefore constitutes a major challenge for any effort to increase uptake of these treatments.

The AMFm program has successfully and dramatically decreased prices of ACTs to levels that are similar to sub-optimal alternatives and affordable to many caregivers. However, while the AMFm program employed a subsidy to reduce the price due to the intrinsically high cost of manufacturing ACTs, prices in other markets demonstrate that zinc and ORS can be produced at low cost. As a result, market-driven solutions—rather than a subsidy—are the best approach to reducing end-user prices for zinc and ORS. These solutions include increasing the competition for the products, identifying and resolving sources of increased costs, and realizing economies of scale from higher volumes. This strategy will actively pursue these improvements to the market, working with suppliers and encouraging their greater investment in zinc and ORS markets as appropriate.

Intervention 1 (National): Encourage production of affordable, high-quality ORS and Zinc.

Objectives:

- Increase the availability and affordability of high quality zinc and ORS products in the public and private sectors
- Introduce and ensure broad availability of affordable co-packaged zinc and ORS products on the Nigerian retail market

Rationale:

Zinc and ORS are expensive in Nigeria, due in a large part to the lack of a competitive supply landscape—both in terms of local manufacturing and affordable imports. Initial market analysis indicates that increased demand would result in entry of more suppliers into the zinc market and more aggressive participation in the ORS market. As such, this plan includes the development of a robust analysis of the expected growth in demand for zinc and ORS based on the implementation of this ambitious plan and the strong government commitment to aggressive scale-up. This demand forecast will be used to encourage suppliers to invest in the products and demonstrate that pricing at low, affordable levels will be essential to generating the targeted increases in demand.

Importantly, the program will only engage with suppliers that are committed to producing the products at high quality to ensure the safety of patients. To this end, Government will provide guidance to suppliers through NAFDAC by establishing standard product specifications. Moreover, the creation of a national brand for zinc and ORS will be pursued and this national brand will be featured in mass communication, awareness, and demand generation activities for zinc and ORS. Suppliers wishing to join the national brand and benefit from the additional market exposure it will provide will be required to adhere to quality and pricing standards, to be determined in consultation with private-sector partners. Government and its partners will also work with national brand suppliers to develop their production and quality capacity.

Activities:

- i) **Facilitate entry of qualified suppliers and affordable zinc and ORS products:** Relevant partner organizations will be supported to conduct an in-depth analysis of the market for zinc and ORS in Nigeria with a focus on expected increases in demand and the corresponding potential financial returns for suppliers. The partners will then use that information to engage with suppliers who meet certain criteria, including 1) commitment to producing at high quality, 2) ability to produce at low cost and commitment to price at affordable levels, and 3) extensive distribution systems to deliver product throughout the country. Where necessary, partners will negotiate specific agreements that will hold suppliers accountable for their commitments to quality, affordability, and broad access in return for recognition as a part of the initiative (e.g., use of the national logo, participation in major announcements, etc.). In addition, efforts will be explored to reduce the barriers to entry for local manufacturers and importers of co-packaged zinc/ORS products, such as support in technology transfer, manufacturing qualification, and registration assistance.
- ii) **Establish co-packaged products as a standard for government initiatives:** As public-sector procurements represent a significant proportion of many suppliers' sales volumes, clear signals of public-sector support for scale-up are likely to encourage entry and participation by suppliers. To confirm commitment to supporting aggressive

scale-up of zinc and ORS, the Government of Nigeria and its partners will rapidly pursue a number of concrete activities, including incorporating pediatric zinc formulations and co-packaged zinc/ORS products on the list of medications approved for sale by PPMVs and the inclusion of zinc and ORS in government procurement plans. In addition, the government will strongly communicate that a quality and affordable co-packaged version of zinc and ORS will be the standard for government programs in the medium- and long-term rather than separate distribution and marketing of the products to encourage suppliers to plan and invest in that formulation.

- iii) **Establish a private-sector forum for ORS and Zinc suppliers:** Working with suppliers to find solutions to profitability bottlenecks for zinc and ORS has the potential to encourage its prioritization over alternative products. The Government of Nigeria and its partners will therefore support forums to identify solutions to bottlenecks in the production and distribution of ORS and zinc to increase the profitability of both products and encourage increased production.

Intervention 2 (National): Identify and support actions to reduce cost and price of essential medicines.

Objectives:

- Increase the affordability of essential medicines on the Nigerian retail market.
- Maintain or increase the profitability of essential medicines to encourage supplier investments in marketing and production.

Rationale:

While a variety of factors influence high retail prices for ORS and zinc in Nigeria—some of which may be addressed by efforts to improve the competitive landscape—high production costs and tariffs appear to be key drivers in the mark-up (WHO/HAI, 2006). Moreover, relatively high distribution costs for ORS compared to alternative treatments—especially to rural areas—are likely a contributing factor to high retail prices. Improving the affordability of essential medicines by working with suppliers to identify methods for cutting costs therefore represents an important opportunity to increase access. Moreover, while increased affordability will increase access to essential medicines in general, this intervention will prioritize reductions in the price of zinc and ORS given the acuteness of the affordability barrier for these products.

A critical component of this intervention will be the establishment of a framework agreement between Government, donors, and suppliers in order to create a consistent policy environment. Those activities identified to reduce the cost of essential medicines will be incorporated into this agreement and clear timelines and milestones will be articulated to align expectations and increase accountability. This framework agreement may include, in addition to the activities outlined below, commitments to buy locally-manufactured products in order to encourage the development of a sustainable supply base within Nigeria.

Activities:

- i) **Identify major opportunities to reduce the cost and price of essential medicines:** Final costs to consumers for essential medicines are likely attributable to a range of drivers—spanning from production to distribution to retail practices—and while these are currently identifiable, their relative contributions to Nigeria’s high prices are presently not well understood. Key partners will engage with in-country suppliers of essential medicines to identify the major cost components for essential medicines and determine ways of feasibly reducing costs without compromising the quality of the products. Potential approaches to reducing costs suggested by market analysis to date include sourcing of lower cost raw materials (including through waiver of tariffs and fees) and realizing economies of scale—although other opportunities may be revealed by further analysis. These findings will be used to engage regulatory agencies, suppliers, and distributors to pursue methods for reducing the cost of production and distribution and therefore enabling suppliers to charge lower prices to consumers without affecting profitability.
- ii) **Implement cost- and price-reduction measures:** Relevant partners will work with qualified suppliers interested in participating in the scale-up initiative to implement the identified cost-reduction measures such as sourcing of lower cost raw materials. The partners will provide technical support and facilitate engagement with other actors capable of contributing to cost-reduction actions, but not directly invest in suppliers’ relevant actions.
- iii) **Pursue regulatory changes necessary to ensure the affordability of essential medicines:** The Government of Nigeria and its partners will use analyses of cost components to determine which components government can immediately impact—including import duties and tariff structures on manufacturing inputs or packaging. For instance, import duty waivers for ACTs were granted under the AMFm program in order to facilitate progress towards target retail prices and similar waivers could be pursued for manufacturing and processing inputs for the

production of essential medicines. Where the potential for impact is identified, the government and its partners will advocate to the relevant regulatory bodies and agencies for reforms that will ultimately reduce the consumer costs of essential medicines.

IV. Transform the Private-Sector Retail Landscape

With the private sector—especially pharmaceutical retailers—constituting the majority source of treatments for childhood illnesses in Nigeria, reaching these retailers with information, training, and behavior change techniques on child illness management and product recommendations is pivotal to ensuring access to appropriate treatments. Addressing the root causes of sub-standard care among PPMVs is important not just in ensuring they recommend appropriate treatments to their clients, but also in better linking them to formal supply chains where higher-quality treatments are available.

Moreover, as the specific barriers to private-sector access differ for diarrhea, pneumonia, and malaria, efforts to engage the private sector in scaling up access to treatments for these diseases differ in their potential and feasibility. While efforts to improve the use of appropriate treatments for malaria and diarrhea in the private sector, for example, benefit from the ability to directly recruit private retailers in the promotion and sale of these treatments, treatments for pneumonia cannot be sold legally by these retailers, and the potential impact of these channels is therefore diminished.

NGOs in Nigeria currently tackle inadequate retailer knowledge for malaria and reproductive health by cultivating and training networks of PPMVs to distribute appropriate treatments. This model will be adopted and expanded to provide pharmaceutical detailing to promote the use of recommended treatments and skills improvement for PPMVs on the management of childhood illnesses. This expansion of NGO activities will be complemented by efforts to increase relevant supplier (i.e., manufacturer and distributor) investments in marketing and sales forces. The program will also engage relevant professional and regulatory bodies to incorporate training and advocacy for appropriate treatments in their regular meetings and orientations.

Intervention 1 (National): Continuous education of private retailers.

Objectives:

- Increase knowledge of proper management and appropriate treatments for common childhood illnesses among registered PPMVs.
- Increase appropriate pharmaceutical practices—including proper referral practices—vis-à-vis the treatment of common childhood illnesses among PPMVs.
- Increase the proportion of children receiving appropriate treatment for diarrhea and malaria from private sector retailers.

Rationale:

PPMVVs are a major source of care for childhood diarrhea, but knowledge and use of appropriate treatments among these providers is low. The National Association of Proprietary Patent Medicines Dealers (NAPPMED) and the Pharmaceutical Council of Nigeria (PCN) currently carry out annual orientations for registered PPMVs, providing platforms to regularly update PPMVs' knowledge of appropriate treatments. Incorporating advocacy for the use of appropriate treatments from key opinion leaders within NAPPMED at state and local chapter meetings represents an opportunity to deliver behavior change interventions to PPMVs. Finally, facilitating promotional relationships between suppliers and retailers has the potential to incentivize retailer-driven promotion to increase uptake in the private sector.

Activities:

- i) **Integrate diarrhea, pneumonia, and malaria knowledge modules into mandatory NAPPMED and PCN retailer orientations:** Knowledge modules and job aides tailored to the roles of PPMVs will be developed covering symptoms, appropriate treatments, danger signs, and referral guidance for diarrhea, pneumonia, and malaria. These will be developed with input from public and private sector stakeholders (i.e. NPHCDA, FMOH, NAPPMED, and PCN). NAPPMED leadership at the local, state, and national levels will be identified and trained to deliver the modules and disseminate job aides in conjunction with PCN officials at annual orientations to facilitate PPMV awareness of and adherence to treatment and referral guidelines. The development of online training modules for continued education by PCN will also be explored as a way to reinforce training and encourage appropriate practices.

- ii) **Support advocacy for appropriate diarrhea, pneumonia, and malaria treatments through state and local NAPPMED chapters:** Relevant in-country partners (i.e. NGOs, PCN, FMOH, NPHCDA, NAPPMED) will advocate to state and local chapters of retailer associations to incorporate periodic advocacy and training on appropriate treatments for childhood illnesses in their regular meetings. Key opinion leaders at the national and state levels will be identified and engaged to deliver this advocacy under a socially activated marketing strategy to increase uptake of messaging and proper practices. This activity will be carried out as a component of the National Action Campaign for Child Health described above.
- iii) **NGO facilitated detailing and promotion for ACTs and zinc/ORS:** The cornerstone of the effort to increase appropriate treatment for malaria and diarrhea in the private sector will be an effort to directly promote the benefits and use of zinc, ORS, and ACTs to PPMVs using established detailing and market facilitation techniques. While brand-specific detailing will be conducted by suppliers (as outlined in the following intervention), these efforts will be complemented by NGO-led detailing that will be focused on the general promotion of ACTs, zinc and ORS that meet quality standards. These NGOs will provide information on the effectiveness, indications, and role of appropriate treatments in childhood illness management; they will also link retailers to relevant distributors and wholesalers to access a consistent supply of the products. Messages will focus on the specific benefits of the recommended products over alternatives. Roll-out of this activity will be phased and will first focus on high-burden states prioritized by rates of care-seeking in the private sector—with a target reach of all 37 states (including FCT) by the end of 2013.
- iv) *[Long-term]* **Facilitate direct, sustainable relationships with suppliers:** In the long term, direct links between suppliers and retailers will be supported by working with suppliers to streamline distribution by connecting retailer associations directly to supply chains—allowing suppliers to realize economies of scale by pursuing more centralized distribution strategies and ensuring that intensive promotional activities are sustained at the local and state association level after specialized programs are ended. In addition, incentivized relationships between high-volume PPMVs and private-sector suppliers will also be promoted as a sustainable way to encourage retailers to promote appropriate treatments for childhood illnesses. Such relationships would include more intensive pharmaceutical detailing and volume procurement incentives.

Intervention 2 (National): Facilitate supplier marketing to boost retail sales of zinc and ORS.

Objectives:

- Increase the availability of zinc and ORS in private retail outlets.
- Increase the proportion of caregivers who prefer zinc and ORS for the treatment of childhood diarrhea.
- Increase the proportion of caregivers who prefer ACTs for the treatment of childhood malaria.

Rationale:

Partnering with suppliers to leverage their sales and marketing forces will further build demand for co-packaged zinc/ORS products. However, the volume and distribution of pharmaceutical retailers in Nigeria make the cost of direct promotion prohibitive for many suppliers. As such, they often do not engage in the large-scale detailing and marketing activities for lower margin products such as zinc and ORS that drive provider and consumer demand for other products in their portfolios.

The program will accordingly explore opportunities to encourage and incentivize manufacturers and importers—with registered products meeting specified quality standards—to expand the penetration of their sales and marketing forces to actively promote use of zinc and ORS to a larger base of outlets and underserved areas.

Activities:

- i) **Incentivize large-scale consumer marketing and promotion programs for zinc and ORS:** The government of Nigeria will support programs to incentivize mass marketing campaigns for zinc and ORS products. Matching grants, in-kind marketing materials, and/or other incentives will be offered to suppliers and distributors of high-quality zinc and ORS products if they agree to price the products affordably and to aggressively promote their appropriate use through sales and marketing materials, detailing, promotional events, and other mechanisms. These incentives will be performance-based, requiring suppliers and distributors to demonstrate completion of their commitments and/or corresponding improvement in PPMV behavior and zinc/ORS uptake in order to receive additional support.

- ii) **Develop and disseminate open-access marketing materials:** Messaging for ACTs, zinc, and ORS developed for the National Action Campaign and other national IEC/BCC efforts will be made freely available to suppliers and distributors for adaption to and use in their promotional campaigns. (National Action Campaign materials will be brand-neutral and will therefore complement the brand-specific messages and materials that suppliers and distributors will use.) Additionally, findings from formative research for these campaigns on consumer and retailer behaviors and preferences will also be freely disseminated to suppliers in an effort to reduce cost barriers to the development of effective promotional campaigns.
- iii) **Share results of regular price, availability, and demand tracking surveys:** Regular updates on the shape of the public and private markets for essential medicines from availability and affordability monitoring efforts will be used to increase market transparency and give suppliers access to information that can be used to assess and adjust marketing tactics. This data will also be used to track progress of the program overall and enable the development of targeted solutions to address problems identified in the availability and affordability of the products. For example, if the data showed that zinc and ORS stocking was much lower in a remote region of the country, the government and partners could work with relevant distributors and NGOs to understand the causes of the issue and develop additional incentives to increase supply to the area.

5. ESTIMATED IMPLEMENTATION COSTS

The sums presented in the summary costing below refer to overarching costs associated with the scale-up of treatment for pediatric diarrhea, pneumonia and malaria, including costs to be leveraged from existing budgets with dovetailing goals. For instance, the budget for the MNCH weeks workstream incorporates allocations for manpower, travel, commodities, and outreach events that will be leveraged—in part—to support the pediatric essential medicines scale-up.

A further note is that within each activity is budgeted “Technical and Managerial Support” for the direct administrative, managerial, and other support costs associated with implementation. These costs do not incorporate the full cost of staff and logistics that may be leveraged during the implementation of the activity. For example, for intervention 5 (establishment of affordable and high-quality zinc and ORS products), technical and managerial costs such as the manufacturing, supply, and detailing of products by private sector players are not included. Staff and infrastructural costs already provided for by operational budgets within the public sector are also not included in these calculations.

	2012 (Year 1)	2013 (Year 2)	2014 (Year 3)	2015 (Year 4)	Total 2012-2015
Intervention 1 - National Action Campaign for Child Health	\$ 11,904,535.50	\$ 13,837,145.00	\$ 4,669,402.50	\$ 3,959,565.00	\$ 34,370,648.00
Activity 1.0 Knowledge, Attitudes, and Practices Study	\$ 159,413.00	\$ -	\$ -	\$ -	\$ 159,413.00
Activity 1.1 Mass Media - Radio Campaign	\$ 452,582.50	\$ 791,775.00	\$ 631,120.00	\$ 602,887.50	\$ 2,478,365.00
Activity 1.2 Mass Media - SMS Campaign	\$ 675,107.50	\$ 1,293,750.00	\$ 1,321,982.50	\$ 1,293,750.00	\$ 4,584,590.00
Activity 1.3 Mass Media - Television and Movies	\$ 1,399,722.50	\$ 2,559,325.00	\$ 2,638,272.50	\$ 1,984,900.00	\$ 8,582,220.00
Activity 1.4 Identify Target Groups and Recruit Key Opinion Leaders	\$ 158,527.50	\$ 78,027.50	\$ 78,027.50	\$ 78,027.50	\$ 392,610.00
Activity 1.5 Rapidly Disseminate Messaging	\$ 76,532.50	\$ 131,617.50	\$ -	\$ -	\$ 208,150.00
Activity 1.6 Free Sample Distribution	\$ 8,982,650.00	\$ 8,982,650.00	\$ -	\$ -	\$ 17,965,300.00
Intervention 2 - Leverage Existing Central Supply Chains to Increase Public-Sector Availability	\$ 1,760,765.00	\$ 2,462,193.13	\$ 2,498,806.25	\$ 2,632,502.38	\$ 9,354,266.75
Activity 2.1 Map Existing Supply Chains	\$ 127,075.00	\$ -	\$ -	\$ -	\$ 127,075.00
Activity 2.2 Quantify and Procure Commodities	\$ 837,602.50	\$ 961,802.50	\$ 914,192.50	\$ 868,963.00	\$ 3,582,560.50
Activity 2.3 Distribute and Track Commodities	\$ 451,087.50	\$ 393,975.63	\$ 394,363.75	\$ 394,751.88	\$ 1,634,178.75
Activity 2.4 Mobilize Communities Linked to Supplied PHCs	\$ 345,000.00	\$ 1,035,000.00	\$ 1,190,250.00	\$ 1,368,787.50	\$ 3,939,037.50
Activity 2.5 Assess potential for Supply Chain Integration and Strengthening	\$ -	\$ 71,415.00	\$ -	\$ -	\$ 71,415.00
Intervention 3 - Improve Knowledge of PHC Staff to Increase Use of Appropriate Treatments	\$ 1,337,787.50	\$ 2,270,725.00	\$ 873,775.00	\$ 798,725.00	\$ 5,281,012.50
Activity 3.1 Review and Develop Training Modules and Job Aides	\$ 132,250.00	\$ 28,750.00	\$ 103,800.00	\$ 28,750.00	\$ 293,550.00
Activity 3.2 Targeted IMCI Training and Job Aide Delivery	\$ 1,104,000.00	\$ 2,208,000.00	\$ 736,000.00	\$ 736,000.00	\$ 4,784,000.00
Activity 3.3 National SMS Reminder System	\$ 76,237.50	\$ 33,975.00	\$ 33,975.00	\$ 33,975.00	\$ 178,162.50
Activity 3.5 Health Worker Advocacy Campaign	\$ -	\$ -	\$ -	\$ -	\$ -
Task 3.2.1 Implemented under National Action Campaign. No additional costs.					\$ -
Activity 3.6 Train Health Workers through Child-Health Platform Scale-Up	\$ 25,300.00	\$ -	\$ -	\$ -	\$ 25,300.00
Intervention 4 - Support Increased Procurement of Essential Medicines at the State and Local Levels	\$ 514,337.50	\$ 1,518,000.00	\$ 2,254,000.00	\$ 2,403,500.00	\$ 6,689,837.50
Activity 4.1 Strengthen Facility-Level Procurement	\$ 345,000.00	\$ 931,500.00	\$ 1,380,000.00	\$ 1,242,000.00	\$ 3,898,500.00
Activity 4.2 Advocate for Increased State and Local Procurement	\$ 169,337.50	\$ 586,500.00	\$ 874,000.00	\$ 1,161,500.00	\$ 2,791,337.50
Intervention 5 - Encourage Production of Affordable, High-Quality ORS and Zinc	\$ 107,900.00	\$ 13,800.00	\$ 13,800.00	\$ 13,800.00	\$ 149,300.00
Activity 5.1 Facilitate Entry of Qualified Suppliers and Affordable Zinc and ORS Products	\$ 43,700.00	\$ -	\$ -	\$ -	\$ 43,700.00
Activity 5.2 Establish Co-Packaged Products as a Standard for Government Initiatives	\$ 57,300.00	\$ -	\$ -	\$ -	\$ 57,300.00
Activity 5.3 Establish Private-Sector Forum for ORS and Zinc Suppliers	\$ 6,900.00	\$ 13,800.00	\$ 13,800.00	\$ 13,800.00	\$ 48,300.00
Intervention 6 - Identify and Support Actions to Reduce the Price of Zinc and ORS	\$ 87,500.00	\$ 112,500.00	\$ -	\$ -	\$ 200,000.00
Activity 6.1 Identify Opportunities to Reduce Cost and Price of Essential Medicines	\$ 50,000.00	\$ -	\$ -	\$ -	\$ 50,000.00
Activity 6.2 Implement Cost- and Price-Reduction Measures	\$ 37,500.00	\$ 112,500.00	\$ -	\$ -	\$ 150,000.00
Activity 6.3 Pursue Regulatory Changes Necessary to Ensure Affordability	\$ -	\$ -	\$ -	\$ -	\$ -
Task 3.3.1 Implemented through task-force coordination and advocacy. No additional costs.					\$ -
Intervention 7 - Continuous Education of Private Retailers	\$ 1,000,615.00	\$ 4,158,572.50	\$ 5,680,885.00	\$ 4,279,322.50	\$ 15,119,395.00
Activity 7.1 Integrate Knowledge Modules into Retailer Orientations	\$ 138,115.00	\$ 23,000.00	\$ 94,875.00	\$ 23,000.00	\$ 278,990.00
Activity 7.2 Support Advocacy through State and Local NAPPED Chapters	\$ -	\$ 244,260.00	\$ 244,260.00	\$ 244,260.00	\$ 732,780.00
Activity 7.3 NGO-Facilitated Detailing and Promotion	\$ 862,500.00	\$ 3,879,812.50	\$ 5,318,750.00	\$ 3,989,062.50	\$ 14,050,125.00
Activity 7.4 Facilitate Direct, Sustainable Relationships with Suppliers	\$ -	\$ 11,500.00	\$ 23,000.00	\$ 23,000.00	\$ 57,500.00
Intervention 8 - Facilitate Supplier Marketing to Boost Retail Sales	\$ 17,825.00	\$ 1,161,500.00	\$ 1,161,500.00	\$ 1,161,500.00	\$ 3,502,325.00
Activity 8.1 Incentivize Large-Scale Consumer Marketing Programs	\$ -	\$ 1,150,000.00	\$ 1,150,000.00	\$ 1,150,000.00	\$ 3,450,000.00
Activity 8.2 Develop and Disseminate Open-Access Marketing Materials	\$ 12,075.00	\$ -	\$ -	\$ -	\$ 12,075.00
Activity 8.3 Share Results of Regular Price, Availability, and Demand Tracking Surveys	\$ 5,750.00	\$ 11,500.00	\$ 11,500.00	\$ 11,500.00	\$ 40,250.00
X. Coordination, Monitoring & Evaluation	\$ 1,673,126.55	\$ 2,553,443.56	\$ 1,715,216.88	\$ 1,524,891.49	\$ 7,466,678.48
X. Administration Costs	\$ 920,219.60	\$ 1,404,393.96	\$ 943,369.28	\$ 838,690.32	\$ 4,106,673.16
Overall total	\$ 19,324,612	\$ 29,492,273	\$ 19,810,755	\$ 17,612,497	\$ 86,240,136

Bibliography

- Brieger, W., Osamor, P., Salami, K., Oladepo, O., & SA, O. (2004). Interactions between patent medicine vendors and customers in urban and rural Nigeria. *Health Policy and Planning*, 19, 177-82.
- Center for Disease Control (CDC). (2011, May 13). *Progress Toward Interruption of Wild Poliovirus Transmission --- Worldwide, January 2010--March 2011*. Retrieved December 19, 2011, from CDC Morbidity and Mortality Weekly Report (MMWR): <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6018a3.htm>
- Center for Disease Control (CDC). (2010, July 10). *Progress Toward Poliomyelitis Eradication --- Nigeria, January 2009--June 2010*. Retrieved December 19, 2011, from CDC Morbidity and Mortality Weekly Report (MMWR): <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5926a2.htm>
- DHS. (2008). *Nigerian Demographic and Health Survey*.
- DHS. (2009). *Nigerian Demographic and Health Survey*.
- Ehiri JE, O.-I. A. (2005). Quality of child health services in primary health care facilities in south-east . *Child Care Health Dev*, 181-91.
- Feikin D, e. a. (2011). CDC/KEMRI/ICDDR,B.
- HAI. (2011). *Retail Prices of ACTs co-paid by the AMFm and other antimalarial medicines: Ghana, Kenya, Madagascar, Nigeria, Tanzania, and Uganda*.
- Hirschhorn, N. (1985). Saving children's lives: a communication campaign in Egypt. . *Development communication report; n50-51 Sum-Aut 1985, n52-55 Win-Aut 1986* .
- International Telecommunication Union. (2009). *World Telecommunication/ICT Development Report*.
- Littrell M, G. H. (2011). Monitoring fever treatment behaviour and equitable access to effective medicines in the context of initiatives to improve ACT access: baseline results and implications for programming in six African countries. *Malar J.*, 10 (327).
- Meekers, e. a. (2004). Using behavior change communications to overcome social marketing plateaus: case studies of Nigeria and India. *Commercial Market Strategies: New Directions in Reproductive Health* .
- MICS. (2007). *Final report: Monitoring the Situation of Children and Women; Nigeria*. .
- Nasrin, D., Larson, C., Sultana, S., & Khan, T. (2005). Acceptability of and adherence to dispersible zinc tablet in the treatment of acute childhood diarrhoea. *Journal of Health, Population, and Nutrition*, 23 (3), 215-21.
- NBS/UNICEF. (2007). Multiple Indicator Cluster Survey.
- Nigerian Demographic and Health Survey . (2008).
- Palafox, B., Patouillard, E., Tougher, S., Goodman, C., & Hanson, K. (2009). *The Private Commercial Sector Distribution Chain for Antimalarial Drugs in Nigeria: Findings from a Rapid Survey* . ACTwatch & LSHTM.
- Reyes, H., Perez-Cuevas, R., Salmeron, J., Tome, P., Guiscafne, H., & Gutierrez, G. (1997). Infant mortality due to acute respiratory infections: the influence of primary care processes. *Health Policy and Planning*, 12, 214-23.
- Sambo, M. e. (2010, Apr-Jun). Quality of care in primary health centres of Tafa Local Government Area of Niger state, North central Nigeria: the clients' perspective. *Niger J Med*, 194-8.
- Sazawal, S., & Black, R. (2003). Effect of pneumonia case management on mortality in neonates, infants, and preschool children: a meta-analysis of community-based trials. *The Lancet; Infectious Diseases*, 3 (9), 547-56.
- Semi-Structured Interviews with Suppliers. (n.d.).
- UNICEF. (2011). Baseline assessment of diarrhea treatment in four states.
- USAID. (2011). Secondary analysis of NDHS 2008 data.
- Uzochukwu, B., Chiegboka, L., Enwereuzo, C., Nwosu, U., Okorafor, D., Onwujekwe, O., et al. (2010). Examining appropriate diagnosis and treatment of malaria: availability and use of rapid diagnostic tests and artemisinin-based combination therapy in public and private health facilities in south east Nigeria. *BMC Public Health*, 16 (10), 486.
- Uzochukwu, B., Onwujekwe, E., Ezuma, N., Ezeoke, O., Ajuba, M., & Sibeudu, F. (2011). Improving rational treatment of malaria: perceptions and influence of RDTs on prescribing behaviour of health workers in southeast Nigeria. *Plos One*, 6 (1).
- WHO/FMoH. (2010). Access to and Rational Use of Medicines at the Facility Level.
- WHO/HAI. (2006). Medicine Prices in Nigeria.
- World Bank. (2010). Improving Primary Health Care Delivery in Nigeria: Evidence from Four States. *Africa Human Development Series* .
- World Health Organization (WHO). (1981). Clinical management of acute respiratory infections in children: a WHO memorandum. *Bulletin of the World Health Organization*, 597, 07-16.