WORKING PAPER

Integrated Community Case Management of Childhood Illnesses Assessment of Nigeria's Program

September 2017





Integrated Community Case Management of Childhood Illnesses Assessment of Nigeria's Program

Samson B. Adebayo, PhD; Gbenga Ishola, PhD; and Adedayo Adeyemi, MBBS, MPH, PhD

September 2017

MEASURE Evaluation

University of North Carolina at Chapel Hill, USA 400 Meadowmont Village Circle, 3rdFloorChapel Hill, NC 27517 USA Phone: +1 919-445-9350 <u>measure@unc.edu</u> www.measureevaluation.org This publication was produced with the support of the United States Agency for International Development (USAID) under the terms of MEASURE Evaluation cooperative agreement AID-OAA-L-14-00004. MEASURE Evaluation is implemented by the Carolina Population Center, University of North Carolina at Chapel Hill in partnership with ICF International; John Snow, Inc.; Management Sciences for Health; Palladium; and Tulane University. Views expressed are not necessarily those of USAID or the United States government. WP-17-186





ACKNOWLEDGMENTS

The authors thank the United States Agency for International Development (USAID) for its support of this research.

We acknowledge the support received from the USAID-funded MEASURE Evaluation project, based at the University of North Carolina at Chapel Hill, USA, and the grant that MEASURE Evaluation provided to the International Health and Development Analysis Center to carry out this assessment. We also thank all the participants in the qualitative component of this research, who contributed immense value to this study. We appreciate the cooperation of Sokoto State Ministry of Health and Benue State Ministry of Health.

We acknowledge the cooperation and support we received from the Director of Primary Health Care Services, the Officer in Charge of the Primary Health Care Clinic in Sokoto State, the Director of Public Health, and the Benue State Ministry of Health and Disease Surveillance Officer.

We are grateful to the district heads of Gumburawa and Gwiwa and to religious leaders in the two communities who participated in the qualitative research, in addition to providing an enabling environment for conducting this research.

We acknowledge the community health extension workers, nurses, and midwives. All participated in the qualitative research, by providing useful information relevant to the research issues in their respective states.

CONTENTS

Tables	6
Abbreviations	7
Executive Summary	
Introduction	10
Aim and Objective of the Study	
Usefulness of Study Results	
Methods	12
Study Setting	12
Sampling Strategy	12
Design of Interview Guides	12
Selection and Training of Data Collectors	13
Translations of the Tool	13
Recruitment of Participants	13
Analytical Strategy	13
Ethical Consideration	14
Quality Assurance	14
Results	15
Incidence of Childhood Illnesses from the 2008 and 2013 Nigeria Demographic and Health Su	rvey 15
Caregivers Seeking Treatment for Childhood Illness	19
Bivariate Analysis	19
Logistic Regression	21
Seeking Treatment for Childhood Illness from a Nonfacility-Based Provider	
Bivariate Analysis	23
Logistic Regression Analysis	25
Findings from Qualitative Interviews	
Summary Findings from Focus Group Discussions with Parents	
Summary Findings from Focus Group Discussions with Community Health Extension Wos	rkers 29
Summary Findings from Focus Group Discussions with Nurses and Midwives	
Summary Findings from Key Informant Interviews with Traditional Leaders	
Summary Findings from Key Informant Interviews with the State Ministry of Health	
Discussion	
Conclusion	
References	

TABLES

Table 1. Descriptive analysis of episodes of diarrhea in CU5 in the two weeks preceding the NDHS, according to selected demographic characteristics	. 15
Table 2. Descriptive analysis of episodes of fever in CU5 in the two weeks preceding the NDHS, according to selected demographic characteristics	. 17
Table 3. Descriptive analysis of episodes of pneumonia among CU5 who had a cough during the two weeks preceding the NDHS, according to selected demographic characteristics	. 18
Table 4. Findings from the bivariate analysis of treatment-seeking for childhood illness, according to selected sociodemographic characteristics	. 20
Table 5. Findings from the logistic regression analysis of treatment-seeking for childhood illness	. 22
Table 6. Bivariate analysis of treatment-seeking for childhood illness from a nonfacility-based healthcar- provider, according to selected demographic characteristics	e . 24
Table 7. Logistic regression analysis of treatment-seeking for childhood illness from a nonfacility-based provider	. 25
Table 8. Number and types of qualitative data collection conducted per state	. 26

ABBREVIATIONS

community health extension worker
children under the age of five years
Federal Ministry of Health
focus group discussion
integrated community case management
insecticide-treated net
key informant interview
local government area
Nigeria Demographic and Health Survey
National Population Commission
odds ratio
oral rehydration salt
State Ministry of Health
statistical package for social sciences
United Nations Children's Fund
United States Agency for International Development
water, sanitation, and hygiene
World Health Organization

EXECUTIVE SUMMARY

Background

Integrated community case management (ICCM) is a strategy that enables the assessment, classification, treatment, and referral of cases of the main causes of mortality among children under the age of five years (CU5) in Nigeria: pneumonia, diarrhea, and malaria. Following Nigeria's creation of national guidelines for ICCM in 2013, rollout of the strategy commenced in several states, funded mostly by donors and implemented by nongovernmental organizations. This study sought to assess trends in childhood illnesses and identify sociodemographic barriers and enabling factors affecting the seeking of treatment for CU5.

Objectives

The aim of the study was to assess the effect of the ICCM intervention on the treatment coverage of diarrhea, malaria, and pneumonia, to inform policy and implementation. The study accomplished this goal through the following tasks:

- Examining the trends and patterns of community-based treatment of childhood illnesses in Nigeria
- Assessing the effects of implementing ICCM on treatment coverage in Nigeria
- Identifying barriers and enablers of uptake of ICCM services by caregivers

Methods

The study analyzed the 2008 and 2013 Nigeria Demographic and Health Survey (NDHS) data. Ten key informant interviews (KIIs) and 32 focus group discussions (FGDs) were conducted with community members and leaders, health facility staff, and government stakeholders in Benue and Sokoto states.

Results

The occurrence of childhood illness decreased between 2008 and 2013. The number of reported cases of diarrhea and pneumonia—identified by the symptoms of a cough with short, rapid breaths—was higher among caregivers with no formal education and decreased as caregivers' education and wealth increased. North West and North East Nigeria reported higher incidences of diarrhea than other geopolitical zones, and rural residents reported more cases of diarrhea than their urban counterparts. There was no urban-rural difference in occurrence of fever. Seeking medical treatment from nonfacility-based providers was related to place of residence, level of education, religion of caregiver, geopolitical location of caregiver, and caregiver's socioeconomic status. However, variables such as the age group of the caregiver, sex of the child, and sex of the head of household were not statistically significant. Caregivers in rural communities were about 1.2 times more likely to seek medical treatment for childhood illnesses than their urban counterparts. Female-headed households were more likely to seek treatment for childhood illnesses than their urban counterparts. Female-headed households were more likely to seek treatment for childhood illnesses than their urban counterparts. Female-headed households were more likely to seek treatment for childhood illnesses than their urban counterparts. Female-headed households were more likely to seek treatment for childhood illnesses than their urban counterparts.

Findings from qualitative interviews revealed an increased awareness of the symptoms of childhood illness among caregivers. Several factors thought to hinder prompt treatment-seeking for childhood illnesses were distance to the health facility, inability of community-based providers to treat childhood illnesses (owing to the unavailability of drugs), and lack of spousal support to pay for transport to a health facility or treatment site. Community leaders supported promoting awareness of major childhood illnesses and providing families with funds for treatment. Healthcare workers had been trained to manage childhood illnesses, but they complained of a lack of drugs and other necessary medical supplies. Although some states had started implementing the ICCM strategy, many communities, even within those states, had not done so.

Conclusion

Although full implementation of ICCM will help caregivers to assess care for childhood illnesses with more precision, their awareness of the symptoms of sickness must be increased to better prevent and treat childhood illnesses. Demand for community-led healthcare delivery is high, and Nigerians' acceptance of the implementation of the ICCM is likely to be high, as well, especially in rural communities.

INTRODUCTION

The burden of morbidity and mortality remain high for Nigerian CU5, despite efforts to reduce infant and child mortality (National Population Commission [NPC] & ICF International, 2009; 2014). Mortality among the CU5 population is particularly high in rural areas, where access to healthcare, social services, sanitation, and clean water is limited. In Nigeria and elsewhere in sub-Saharan Africa, diarrhea, malaria, and pneumonia are among the most frequent childhood illnesses and are the leading causes of preventable death among CU5. Findings from the 2013 NDHS revealed that, in the two weeks before the survey, about 2 percent of CU5 had symptoms of an acute respiratory infection, 13 percent had a fever, and about 10 percent had diarrhea. To address the burden of high maternal, infant, and child mortality, Nigeria is implementing the Saving One Million Lives project. Supported by a partnership of donors and United Nations agencies, this initiative promotes community case management of illnesses as a strategy to accelerate access to and coverage of treatment, particularly for children living in remote households, far from existing facilities (Marsh, et al., 2008).

Integrated community case management (ICCM) is a strategy to enable assessment, classification, treatment, and referral of pneumonia, diarrhea, malaria, and severe acute malnutrition among CU5 (Federal Ministry of Health [FMOH], 2013). The launch of the Saving One Million Lives Initiative and approval of the 2012 National Essential Childhood Medicines Scale-Up Plan demonstrated Nigeria's commitment to the ICCM strategy. Although ICCM has shown great promise in increasing access to and coverage of treatment, particularly for children who lack access to health facilities, evidence that it has contributed to increased treatment coverage for childhood illnesses is scant. Therefore, this study aimed to assess the contributions of ICCM to treatment coverage of key childhood illnesses in Nigeria and identify existing and potential determinants of uptake of ICCM services by caregivers of CU5 in both rural and urban communities in Nigeria.

The National Integrated Community Case Management Implementation Framework: A Roadmap to ICCM implementation in Nigeria was meant to facilitate a smooth implementation of the project. This framework builds on the existing platform of the National Guideline for the Implementation of Integrated Community Case Management of Childhood Illness in Nigeria, which was adopted in 2012 (FMOH, 2013; 2015). The intervention targets the three major childhood diseases: Malaria, Diarrhea, and Pneumonia, which are the major causes of under-five mortality (FMOH, 2015). Figure 1 presents the Nigerian ICCM implementation framework.

Aim and Objective of the Study

The overall aim of the study was to assess the effect of the ICCM intervention on the treatment coverage of diarrhea, malaria, and pneumonia to inform policy and implementation. The study accomplished this objective through the following activities:

- Examining the trend and patterns of community-based treatment of childhood illnesses in Nigeria
- Assessing the effects of implementing ICCM on treatment coverage in Nigeria
- Identifying barriers and enablers of uptake of ICCM services by caregivers

Usefulness of Study Results

Study findings will support policy and programmatic decisions, particularly among relevant institutions in Nigeria. The results will guide the FMOH, the National Primary Health Care Development Agency, and the National Malaria Elimination Program in reviewing the implementation guidelines and strategies to

meet the program targets stated in the National Child Health Policy (FMOH, 2006). The results will provide useful evidence to help development partners and donors make informed decisions about the best approaches in different regions and settings to support implementation of ICCM as a strategy to prevent high infant and child mortality resulting from preventable causes such as diarrhea, malaria, and pneumonia. Furthermore, these results will allow government and donor agencies to use their resources more effectively to achieve optimally cost-effective interventions.



Figure 1. The Nigeria Integrated Community Case Management Implementation Framework

Source: Nigeria Federal Ministry of Health, 2015

METHODS

This study was conducted between January and December 2016 by a research team from the International Health and Development Analysis Center with financial support from MEASURE Evaluation, which is funded by the United States Agency for International Development (USAID). The study involved an analysis of the 2008 and 2013 NDHS data and qualitative interviews with members of selected communities, community leaders, health facility staff, and representatives of the FMOH. This section presents detailed information about the study's design, data collection procedure, and data analysis plan.

Study Setting

The study started with a review of the quantitative data for the 2008 and 2013 NHDS, to identify variables of interest to the research. Qualitative interviews were conducted with community members and gatekeepers¹ in two Nigerian states—Benue, in the North Central region, and Sokoto, in the North West—that are currently implementing ICCM. The objective of the study was to elicit information on coverage and use of designated ICCM providers in both states and compare the coverage with findings from the NDHS.

Sampling Strategy

Benue and Sokoto states were purposefully selected for the qualitative interviews. Male and female participants for the qualitative data were selected across relevant groups—such as community gatekeepers, health workers, and policymakers at the State Ministry of Health (SMOH)—with equal representation in rural and urban communities in each state. Mothers and fathers of CU5 were recruited for FGDs. The cadres of health workers in the FGDs were nurses, midwives, and community health extension workers (CHEWs). FGD sessions for all categories of participants were conducted separately. Two FGD sessions were held for each of the groups that participanted in the study. The focus groups consisted of six to eight participants per group, for a total of 32 participants. Final sample size was guided by the need to have at least two interview groups in each sublocation to allow comparison of findings within and between locations, for quality assurance. Four KIIs were conducted with traditional leaders and six with SMOH staff.

Design of Interview Guides

Both the FGD and KII guides were tailored to address the objective of the study as it applies to the different types of groups. For instance, the guides for health workers had more technical questions, pertaining to knowledge, prevention, and treatment of childhood illnesses, whereas the questions for parents targeted their knowledge and treatment-seeking behavior for childhood illnesses. Questions about community participation in the prevention and control of childhood illnesses targeted gatekeepers, but questions on capacity, strategy, and policy issues related to ICCM were directed to participants from the SMOH. Therefore, each respondent group was asked a specific set of questions, developed through desk and literature review,² that had been pretested and revised before being administered. Findings from the qualitative component were triangulated with the quantitative data analysis.

¹Gatekeepers are individuals who aid researchers in accessing target communities or groups, especially communities prone to security challenges or people who are not easily contacted, such as men who have sex with men, female sex workers, or people who inject drugs.

² Some of the documents reviewed are 2009–2013 FMOH Strategic Plan, National Guidelines for Diagnosis and Treatment of Malaria (2015 - Third Version), 2015 WHO Malaria Treatment Guidelines, and The National Integrated Community Case Management Implementation Framework: A Roadmap to iCCM implementation in Nigeria.

¹² Evaluation of Integrated Community Case Management in Nigeria

Selection and Training of Data Collectors

One field coordinator was recruited for each state. The coordinators were experienced in field organization for qualitative data collection and spoke the local languages of the two states. A training of trainers was held for the coordinators in Abuja. At the training, the coordinators were introduced to the study objectives and data collection tools. The tools and questions were discussed to make sure they were understood and valid. During the training, sessions were held on how to recruit FGD participants, how to set up the venue, the roles and responsibilities of facilitators and notetakers, how to conduct FGDs and KIIs, and the importance of making discussions participatory. Step-down trainings were held in each state for the facilitators and notetakers. Two facilitators and two notetakers were recruited per state. Prior to data collection, data collectors went through the same training topics as the fieldcoordinators and role-played their responsibilities.

Translations of the Tool

The tools were translated into the local languages during the training of facilitators and notetakers. Translations were conducted jointly, and agreement was reached on appropriate translations and the meanings of all questions. This was to ensure that all facilitators asked the questions in the same way.

Recruitment of Participants

Contact people in each state recruited the participants for the FGDs and KIIs. The contacts were from the respective states and had local knowledge of the culture and terrain. After introducing the goal and objectives of the study, the contacts were briefed on the recruitment strategies and the inclusion and exclusion criteria for the selection of participants. Categories of desired FGD participants were given to the contacts, who then spoke to the respective gatekeepers to get permission. A list of people who agreed to participate in the discussions was made, and dates and venues for the sessions were agreed upon. Interviews with key informants were held in government officials' offices and opinion leaders' homes at fixed dates and times.

Analytical Strategy

Data from the NDHS were analyzed using Stata software. Reported cases of childhood fever, diarrhea, and pneumonia in CU5 were obtained from the 2008 and 2013 NDHS. Data from respondents whose children never experienced any of the childhood illnesses was filtered out. Further analyses of the data were based on this subset of childhood illnesses.

Frequencies were generated for study participants' demographic characteristics (such as age, religion, level of educational attainment, household wealth index, and place of residence), and these frequencies were compared with the NDHS 2008 and 2013 datasets. A chi-squared test of association between demographic characteristics and occurrence of childhood illnesses was conducted to identify statistically significant determinants. A similar analysis was performed for treatment-seeking for childhood illness. Because the NDHS did not include questions on treatment-seeking from a trained ICCM provider, a proxy was generated based on cases of childhood illnesses medically treated by nonfacility-based providers (filtering out all hospitals, pharmacies, and chemist stores). A logistic regression analysis was conducted to determine the likelihood of seeking treatment for childhood illnesses and the likelihood of seeking treatment from a nonfacility-based provider, with respect to significant demographic variables from the chi-squared test of association. All results were tabulated, and results were analyzed based on the 0.05 significance level.

Responses from the qualitative interviews were captured by audio recording and transcribed for analysis. Themes were identified through content review. Findings were compared across year of study, level of

13

education of caregivers, place of residence, geopolitical zone, wealth index, age group, sex of child, and sex of household head.

Ethical Consideration

All analyses were based on the 2008 and 2013 Nigeria Demographic and Health Survey data available on the Monitoring and Evaluation to Assess and Use Results Demographic and Health Surveys website (2008; 2013). The NDHS datasets received ethical approval from both local and international research ethics committees. The qualitative aspect of this study was conducted in accordance with the principles of respect for person, benevolence, and justice (United States Department of Health, Education, and Welfare, 1978). All responses to interviews were treated with confidentiality. Names of respondents were neither included in nor tied to responses in the final report. Informed consent was obtained from all respondents. All study documents were submitted to the national health research ethics committee, and a waiver of ethical approval was granted before the study began. Approval for collecting the qualitative data was given by the National Health Ethical Review Committee in Nigeria and by the SMOHs in Benue and Sokoto.

Quality Assurance

Discussion guides were pretested and revised based on feedback from the pre-test. The facilitators and notetakers were also trained in the field after the initial field coordinator training, to ensure validity of the data. Interviews were conducted in the most comfortable language for each respondent. Experienced research supervisors were engaged and trained for data collection. In addition to note-taking during the interviews, responses were captured in audio recordings and transcribed.

RESULTS

Incidence of Childhood Illnesses from the 2008 and 2013 Nigeria Demographic and Health Survey

Data analysis was based on reported cases of diarrhea, pneumonia, and fever in CU5 that had occurred within the two weeks preceding the survey. The study revealed a downward trend in the incidence of childhood illness between 2008 and 2013. About 3 percent of CU5 experienced fever, diarrhea, and pneumonia in 2013, compared with about 4 percent in 2008. Incidence of diarrhea in CU5 remained at 10 percent in 2008 and 2013. There was a higher number of reported cases of diarrhea among caregivers with no formal education, and the number decreased with increasing levels of education. A similar trend was observed with the wealth index; caregivers in the poorest wealth category reported more cases of diarrhea in CU5 than their counterparts in the wealthier category. Furthermore, North West and North East Nigeria reported a higher incidence of diarrhea than other geopolitical zones, and rural residents reported more cases of diarrhea than their urban counterparts. Table 1 presents episodes of diarrhea in CU5 according to selected sociodemographic characteristics.

Fever is the main symptom for malaria, with more than 70 percent of people with fever testing positive for malaria, especially in malaria-endemic countries such as Nigeria. About 16 percent of caregivers reported an episode of fever in CU5 in 2008—a number that declined to 13 percent in 2013. Further analysis revealed no urban-rural difference or difference in occurrence of fever based on caregivers' educational level. South East Nigeria reported the highest number of fever cases in 2008, closely followed by the North East, whereas in 2013, more episodes of diarrhea were reported by the North East than any other geopolitical zone. We observed slightly more diarrhea cases reported by caregivers in the poorest and poorer wealth quintiles in 2008, and female-headed households reported more cases of fever than male-headed households in 2013. Table 2 presents episodes of fever in CU5 according to selected sociodemographic characteristics.

Pneumonia, diagnosable by a cough and short, rapid breaths, was reported for about 1.2 percent of CU5 in 2008 and 1 percent in 2013. Among CU5 with a cough in urban communities in 2008, 1.2 percent showed symptoms of pneumonia in 2008, and 0.8 percent in 2013. In 2008 and 2013, incidence of cough with short, rapid breaths in CU5 reduced with caregivers' increasing level of education and with increasing wealth index. The most cases of cough with short, rapid breaths were reported in North East Nigeria in 2008 and in North Central in 2013. In general, more cases of cough with short, rapid breaths were reported in North East was similar among male and female CU5, but more cases were reported among male-headed households than female-headed households. Table 3 presents episodes of cough with short, rapid breaths among CU5, according to selected sociodemographic characteristics.

Table 1. Descriptive analysis of episodes of diarrhea in CU5 in the two weeks preceding the NDHS, according to selected demographic characteristics

Variables among caregivers	Episodes of diarrhea in CU5 in the past 2 weeks				
	2008 2013				
	n	%	n	%	
Place of residence					
Urban	612	8.8	876	9.0	
Rural	2,008	10.9	2,092	11.1	
Level of education					
No education	1,664	13.3	1,636	12.5	
Primary	528	9.1	589	10.1	
Secondary	367	6.3	642	8.2	
Higher	61	4.8	101	5.5	
Religion					
Catholic	46	8.9	33	11.4	
Other Christians	480	5.7	645	6.9	
Islam	155	7.1	200	8.6	
Traditionalist	1,922	13.5	2,078	12.7	
Geopolitical zone					
North Central	235	5.2	294	6.9	
North East	855	12.4	802	9.2	
North West	1,098	12.1	1,264	21.6	
South East	195	6.3	229	6.3	
South South	122	5.6	242	9.5	
South West	115	3.8	137	3.9	
Age of caregiver					
15–19	207	14.8	192	14.2	
20–24	545	10.9	650	11.8	
25–29	720	9.9	827	10.3	
30–34	504	9.4	599	9.5	
35–39	369	9.9	448	10.0	
40–44	186	10.2	168	8.0	
45–49	89	11.0	84	10.8	
Wealth index					
Poorest	886	13.4	847	13.6	
Poorer	752	12.6	806	12.4	
Average	473	9.5	567	9.8	
Richer	336	7.8	438	8.1	
Richest	173	4.9	310	6.6	
Sex of child					
Male	1,388	10.8	1,498	10.4	
Female	1,232	9.8	1,470	10.4	
Sex of household head					
Male	2,448	10.6	2,711	10.6	
Female	172	7.2	257	8.4	
Total	2620	10.4	2968	10.5	

Table 2. Descriptive analysis of episodes of fever in CU5 in the two weeks preceding the NDHS, according to selected demographic characteristics

Variables among caregivers	Episodes of fever in CU5 in the past 2 weeks				
	2008 2013				
	Yes	%	Yes	%	
Place of residence					
Urban	914	13.1	1,173	12.1	
Rural	3,051	16.5	2,518	13.3	
Level of education					
No education	1,952	15.6	1,711	13.1	
Primary	922	15.8	786	13.5	
Secondary	909	15.7	986	12.6	
Higher	182	14.2	208	11.3	
Religion					
Catholic	78	22.9	34	34.0	
Other Christians	1,268	15.1	1,106	11.8	
Islam	395	18.0	381	16.3	
Traditionalist	2,211	15.6	2,142	13.0	
Geopolitical zone					
North Central	414	9.1	314	7.3	
North East	1,017	14.7	880	10.1	
North West	1,145	20.0	1,256	21.5	
South East	269	8.7	261	7.2	
South South	542	24.9	504	19.7	
South West	578	19.3	476	13.6	
Age of caregiver					
15–19	249	17.8	188	13.9	
20–24	785	15.7	749	13.6	
25–29	1,083	14.8	1,046	13.0	
30–34	815	15.2	783	12.4	
35–39	608	16.2	539	12.1	
40-44	293	16.1	275	13.1	
45–49	132	16.2	111	14.3	
Wealth index					
Poorest	1,106	16.8	892	14.3	
Poorer	978	16.3	912	14.0	
Average	770	15.5	807	14.0	
Richer	651	15.1	629	11.7	
Richest	460	12.9	451	9.6	
Sex of child					
Male	2,068	16.1	1,902	13.2	
Female	1,897	15.1	1,789	12.6	
Sex of household head					
Male	3,551	15.4	3,244	12.7	
Female	414	17.4	447	14.6	
Total	3,965	15.6	3,691	12.9	

Table 3. Descriptive analysis of episodes of pneumonia among CU5 who had a cough during the two weeks preceding the NDHS, according to selected demographic characteristics

Variables among caregivers	Episodes of pneumonia in CU5 (short, rapid breaths)				
	20	008	20	13	
	n	%	n	%	
Place of residence					
Urban	312	1.2	318	0.8	
Rural	884	1.1	837	1.0	
Educational attainment					
No formal education	617	1.1	508	0.8	
Only primary	290	1.2	276	1.0	
Only secondary	255	1.5	314	1.3	
Higher	34	0.8	57	0.9	
Religion					
No religion/traditional	21	0.7	14	1.1	
Other Christian	378	1.1	351	0.9	
Catholic	114	1.2	135	1.4	
Islam	682	1.2	646	0.9	
Geopolitical zone					
North Central	147	0.8	153	1.0	
North West	200	0.7	131	0.3	
North East	509	2.1	578	2.4	
South West	54	0.5	29	0.2	
South East	119	1.3	139	1.2	
South South	167	1.4	125	0.8	
Age of caregiver					
15–19	81	5.0	69	4.4	
20–24	278	3.7	278	3.5	
25–29	345	2.1	302	1.7	
30–34	230	1.2	241	1.1	
35–39	153	0.7	145	0.6	
40–44	79	0.4	81	0.4	
45–49	30	0.2	39	0.2	
Wealth index					
Poorest	339	1.2	270	0.9	
Poorer	319	1.2	330	1.2	
Average	242	1.1	286	1.2	
Richer	181	1.1	156	0.7	
Richest	115	0.9	113	0.7	
Sex of child					
Male	602	1.1	593	1.0	
Female	594	1.2	562	1.0	
Sex of household head					
Male	1,094	1.2	1,033	1.0	
Female	102	0.8	122	0.8	
Total	1,196	1.2	1,155	1.0	

Caregivers Seeking Treatment for Childhood Illness

Bivariate Analysis

The study observed a reduction in the number of caregivers of CU5 who sought medical treatment for childhood illness from 55 percent in 2008 to 33 percent in 2013. More than 90 percent of the treatments were sought from facility-based healthcare providers, and the number was higher in 2008 than 2013. Seeking medical treatment for diarrhea for CU5 decreased from 45 percent in 2008 to 34 percent in 2013, and a similar trend was observed for fever, which decreased from 53 percent in 2008 to 31 percent in 2013. More caregivers in rural Nigeria than in urban Nigeria sought medical treatment for diarrhea, and treatment-seeking improved with increasing level of education and wealth index. Treatment-seeking for diarrhea was higher in South East and South South Nigeria than other geopolitical zones. Treatment-seeking for fever was higher among residents in rural areas than their urban counterparts, and it improved as caregivers' educational attainment and socioeconomic status rose. More female-headed households than male-headed households sought medical treatment for fever.

About 45 percent of caregivers of CU5 who experienced one of the main childhood illnesses sought medical treatment. This was significantly higher among caregivers in rural communities than their urban counterparts, although treatment-seeking everywhere declined from 55 percent in 2008 to 34 percent in 2013. Treatment seeking for childhood illnesses increased with increasing educational attainment and socioeconomic status of caregivers, and more caregivers in South West Nigeria than in other geopolitical zones sought medical treatment for childhood illness. Treatment-seeking was higher among Christian caregivers than among those in other religious groups. Furthermore, more female-headed households than male-headed households sought medical treatment for childhood illness. Based on the outcome of a chi-squared test of association, and adopting the 0.05 level of significance, the following were significant sociodemographic determinants of treatment-seeking for childhood illness: place of residence, level of education of caregiver, religion of caregiver, geopolitical location of caregiver, age group of caregiver, socioeconomic status of caregiver, and sex of household head. Sex of child was not statistically significant. Table 4 presents the association between treatment-seeking for childhood illnesses and selected demographic characteristics.

Table 4. Findings from the bivariate analysis of treatment-seeking for childhood illness, according to selected sociodemographic characteristics

	Sought medical treatment for childhood illness in CU5				s in CU5
Variables among	Yes: n=32	736, 44.7%	No: n=46	23, 55.3%	
caregivers	n	%	n	%	P value
Year of NDHS					
2008	2,364	55.0	1,936	45.0	< 0.001
2013	1,372	33.8	2,687	66.2	
Place of residence					
Urban	1,110	48.3	1,189	51.7	< 0.001
Rural	2,626	53.3	3,434	56.7	
Level of education					
No education	1,446	36.8	2,488	63.2	
Primary	910	47.9	990	52.1	< 0.001
Secondary	1,125	53.5	979	46.5	
Higher	255	60.6	166	39.4	
Religion					
Catholic	430	48.1	464	51.9	
Other Christians	1,329	50.5	1,303	49.5	< 0.001
Islam	1,902	40.8	2,762	59.2	
Traditionalist	75	44.4	94	55.6	
Geopolitical zone					
North Central	429	49.6	436	50.4	
North East	1.020	37.8	1.677	62.2	
North West	814	41.7	1.139	58.3	< 0.001
South Fast	575	51.2	549	48.8	
South South	571	49.9	574	50.0	
South West	327	56.9	248	43.0	
Age of caregiver					
15–19	195	40.0	292	60.0	
20-24	737	43.3	967	56.8	
25–29	1,052	45.0	1,279	54.9	0.039
30–34	824	47.6	909	52.5	
35–39	553	44.9	678	55.1	
40-44	269	43.8	345	56.2	
45-49	106	40.9	153	59.1	
Wealth index					
Poorest	742	34.4	1.417	65.6	
Poorer	841	40.6	1.231	59.4	< 0.001
Average	816	46.8	929	53.2	0.001
Richer	757	54.6	630	45.4	
Richest	.580	58.2	416	41.8	
Sex of child		00.2			
Male	1 965	45 5	2 354	54 5	0 127
Female	1 771	43.8	2,004	56.2	0.12/
Sex of household head	1,771	-0.0	2,207	00.2	
Male	3 250	43.8	A 16A	56 0	<0.001
Female	184		4,104	18 K	-0.001
romaio	400	51.4	4,17	40.0	1

Logistic Regression

Exploratory analysis using logistic regression determined the likelihood that caregivers would seek medical treatment for childhood illness. The response variable of whether the caregiver sought medical treatment or not was analyzed over significant sociodemographic variables from the bivariate analysis. Table 5 presents findings from the logistic regression analysis using an odds ratio (OR) for interpretation of results.

We found that the educational level of caregivers was positively associated with treatment-seeking for childhood illness, and the likelihood that a caregiver would seek medical treatment for childhood illnesses rose with the caregivers' level of education. For instance, caregivers with a primary education were about 1.5 times more likely to seek medical treatment for childhood illnesses than their counterparts with no education (OR = 1.53, P value <0.001); caregivers with a secondary education were about 1.8 times more likely to seek medical treatment for childhood illness than their counterparts with no formal education (OR = 1.84, P value <0.001); and caregivers with some formal education were about two times more likely to seek medical treatment for childhood illnesses than their counterparts with no formal education (OR = 2.19, P value <0.001).

Place of residence is positively associated with treatment-seeking for childhood illnesses, such that caregivers in rural communities are about 1.2 times more likely to seek medical treatment for childhood illnesses than their urban counterparts (OR = 1.23, P <0.001). Caregivers from South Nigeria were less likely than their counterparts from North Central to seek treatment.

Caregivers' socioeconomic status was also associated with treatment-seeking for childhood illness, with the likelihood of seeking treatment increasing as socioeconomic status improved. Caregivers who belong to the poorer wealth quintile were about 1.3 times more likely than their counterparts in the poorest wealth quintile to seek treatment. Furthermore, the likelihood that caregivers would seek treatment for childhood illness was 1.6, 2.1, and 2.3 times greater for those in the average, richer, and richest wealth quintiles, respectively, than for those in the poorest socioeconomic category.

Female-headed households were about 1.2 times more likely to seek medical treatment for childhood illness than male-headed households (OR = 1.24, P value = 0.004). Table 5 presents the results from the logistic regression analysis of treatment-seeking for childhood illness.

			Confidence interval		
Variables among	OR	P value	Upper limit	Lower limit	
caregivers					
Year of study					
2008 (ref)*	1.000				
2013	0.384	< 0.001	0.422	0.351	
Place of residence					
Urban (ref)					
Rural	1.231	0.001	1.393	1.087	
Level of education					
No education (ref)	1.000				
Primary	1.528	< 0.001	1.747	1.337	
Secondary	1.838	< 0.001	2.160	1.564	
Higher	2.188	< 0.001	2.846	1.682	
Religion					
Catholic (ref)	1.000				
Other Christian	1.098	0.278	1.299	0.928	
Islam	1.226	0.055	1.509	0.996	
Traditionalist	1.216	0.279	1.735	0.853	
Geopolitical zone					
North Central (ref)	1.000				
North East	0.838	0.052	1.002	0.701	
North West	0.953	0.620	1.153	0.787	
South East	0.865	0.156	1.057	0.709	
South South	0.689	< 0.001	0.842	0.564	
South West	0.909	0.422	1.147	0.721	
Age of respondent					
15–19 (ref)	1.000				
20–24	1.102	0.373	1.365	0.890	
25–29	1.148	0.195	1.414	0.932	
30–34	1.288	0.021	1.597	1.039	
35–39	1.172	0.164	1.466	0.937	
40–44	1.175	0.214	1.513	0.911	
45–49	1.186	0.298	1.634	0.860	
Wealth index					
Poorest (ref)	1.000				
Poorer	1.300	<0.001	1.482	1.140	
Average	1.627	<0.001	1.884	1.404	
Richer	2.097	<0.001	2.499	1.759	
Richest	2.290	<0.001	2.864	1.832	
Sex of household head					
Male (ref)	1.000				
Female	1.240	0.004	1.438	1.069	

Table 5. Findings from the logistic regression analysis of treatment-seeking for childhood illness

*"ref" denotes a reference category with which other categories of wealth index are compared.

Seeking Treatment for Childhood Illness from a Nonfacility-Based Provider

Bivariate Analysis

Integrated community case management of childhood illness encourages the provision of pediatric care by a trained community-based healthcare provider rather than a provider at a health facility, a chemist, or a pharmacist. Although the NDHS did not ask specific questions about treatment-seeking from a trained ICCM provider, it did ask if treatment was from a facility-based provider (hospital, pharmacy, or chemist), traditional provider, or fieldworker. Traditional providers and fieldworkers were reclassified as nonfacility-based providers, like those the ICCM provides. Thus, the following response variable was generated and used for analysis; the "place where treatment was sought" was classified as "1" if it was a nonfacility-based provider and "0" if it was a facility-based provider. Table 6 presents the statistical significance of sociodemographic variables with respect to treatment-seeking as classified above. Based on this, variables such as place of residence, level of education, religion of caregiver, geopolitical location of caregiver, and caregiver's socioeconomic status were significant determinants of treatment-seeking from nonfacility-based providers. However, variables such as age group of caregiver, sex of child, and sex of household head were not statistically significant.

 Table 6. Bivariate analysis of treatment-seeking for childhood illness from a nonfacility-based healthcare provider, according to selected demographic characteristics

	Sought treatment from nonfacility-based healthcare provider				care provider
	Y	ſes	N	0	
Variables among	n	%	n	%	P value
caregivers					
Year of study					
2008	2,312	53.8	1,988	46.2	<0.001
2013	1,197	29.5	2,862	70.5	
Place of residence					
Urban	755	32.8	1,544	67.2	<0.001
Rural	2,754	45.5	3,306	54.5	
Level of education					
No education	1,773	45.1	2,161	54.9	
Primary	839	44.2	1,061	55.8	<0.001
Secondary	775	36.8	1,329	63.2	
Higher	122	29.0	299	71.0	
Religion					
Catholic	407	45.5	487	54.5	
Other Christians	1,163	44.2	1,469	55.8	<0.001
Islam	1,845	39.6	2,819	60.4	
Traditionalist	94	55.6	75	44.4	
Geopolitical zone					
North Central	380	43.9	485	56.1	
North East	994	36.9	1,703	63.1	
North West	855	43.8	1,098	56.2	< 0.001
South East	529	47.1	595	52.9	
South South	526	45.9	619	54.1	
South West	225	39.1	350	60.9	
Age of caregiver					
15–19	217	44.6	270	55.4	
20–24	713	41.8	991	58.2	
25–29	967	41.5	1,364	58.5	0.115
30–34	709	40.9	1,024	59.1	
35–39	524	42.6	707	57.4	
40–44	249	40.5	365	59.5	
45–49	130	50.2	129	49.8	
Wealth index					
Poorest	1,097	50.8	1,062	49.2	
Poorer	913	44.1	1,159	55.9	
Average	669	38.3	1,076	61.7	< 0.001
Richer	488	35.2	899	64.8	
Richest	342	34.3	654	65.7	
Sex of child					
Male	1,790	41.4	2,529	58.6	0.306
Female	1,719	42.5	2,321	57.5	
Sex of household head					
Male	3,136	42.3	4,278	57.7	0.097
Female	373	39.5	572	60.5	

Logistic Regression Analysis

The logistic regression analysis presented in Table 7 revealed a positive association between sociodemographic variables and treatment-seeking from nonfacility-based providers. The likelihood of seeking treatment from a nonfacility-based provider declined from 2008 to 2013. Caregivers from rural communities were about 1.2 times more likely than their counterparts in urban areas to seek treatment from nonfacility-based providers (OR = 1.23, P value < 0.001). The likelihood of seeking treatment from nonfacility-based providers decreased with increasing level of education, and a similar trend was observed for socioeconomic status. The findings revealed a North/South divide in treatment-seeking. Caregivers from southern Nigeria were more likely to seek treatment from nonfacility-based providers than were their counterparts in northern Nigeria. For instance, seeking treatment from nonfacility-based providers was about 1.5 times (OR = 1.48, P value < 0.001) more likely among caregivers in South East Nigeria, 1.4 times (OR = 1.38, P value = 0.002) more likely among those in South South Nigeria, and 1.3 times (OR=1.32, P value = 0.025) more likely among those in South West Nigeria than it was among caregivers in North Central Nigeria. However, caregivers from North East and North West were less likely than their counterparts in North Central Nigeria to seek treatment from nonfacility-based providers. Table 7 presents the findings from a logistic regression analysis of treatment-seeking for childhood illness from a nonfacility-based provider.

Variables among caregivers	OR	P Value	Confidence interval	
			Upper limit	Lower limit
Year of study (Ref: 2008)				
2013	0.376	< 0.001	0.413	0.343
Place of residence (ref: urban)				
Rural	1.232	0.001	1.397	1.085
Level of education (ref: no education)				
Primary	0.760	<0.001	0.872	0.662
Secondary	0.558	<0.001	0.660	0.472
Higher	0.431	< 0.001	0.571	0.325
Religion (ref: catholic)				
Other Christian	0.980	0.817	1.163	0.823
Islam	0.714	0.002	0.883	0.577
Traditionalist	1.106	0.583	1.586	0.772
Geopolitical zone (ref: North Central)				
North East	0.643	<0.001	0.773	0.534
North West	0.822	0.050	1.000	0.676
South East	1.479	<0.001	1.812	1.207
South South	1.382	0.002	1.696	1.127
South West	1.315	0.025	1.671	1.035
Wealth index (ref: poorest)				
Poorer	0.730	<0.001	0.830	0.641
Average	0.547	<0.001	0.634	0.471
Richer	0.472	< 0.001	0.565	0.395
Richest	0.525	< 0.001	0.659	0.417

Table 7. Logistic regression analysis of treatment-seeking for childhood illness from	n a
nonfacility-based provider	

Findings from Qualitative Interviews

Forty-two people participated in FGDs and KIIs in select urban and rural communities in Benue and Sokoto state, as Table 8 shows. Findings from the qualitative data collection are presented in this section.

	Sok	oto	Ber	nue	To	tal
Study participants	Urban	Rural	Urban	Rural	Urban	Rural
Nonhealth worker male focus group discussants	2	2	2	2	4	4
Nonhealth worker female focus group discussants	2	2	2	2	4	4
CHEW focus group discussants	2	2	2	2	4	4
Nurse and midwife focus group discussants	2	2	2	2	4	4
Gatekeeper key informants	2	2	2	2	4	4
SMOH key informants	1	0	1	0	1	1
Total study participants	11	10	11	10	21	21

Table 8. Number and types of qualitative data collection conducted per state

Summary Findings from Focus Group Discussions with Parents

Eight fathers and eight mothers from urban and rural settlements participated in the FGDs. Most of the participants from Sokoto had a basic Arabic education (i.e., Islamiya primary schooling—a type of Islamic institution), unlike their counterparts from Benue, who had obtained a middle-level education (at least secondary school). The average age of the female participants was 28 years, and the average age of male participants was 39 years. Participants were married, widowed, or divorced.

Social and Cultural Determinants of III Health and Health-Seeking Behavior

Poverty, illiteracy, lack of awareness, and distance from the nearest health facility and health provider were frequently mentioned as social and cultural determinants of ill health. Participants in rural communities reported unhealthful conditions in their immediate environment—for example, they reported that animal and human feces commonly contaminated water and food. The urban settlers referred to poor sanitation practices and poor ventilation as precursors of bad health. Women emphasized that poor hygiene—especially handwashing and feeding practices, storage of food, and spiritual attacks (e.g., curses and hexes)—were responsible for ill health in children. Participants in both states identified these factors as determinants of ill health.

I can just say it clearly that our general believe in this locality that our traditional medicines are helping our sick at a cheaper rate, that is why we prefer them first. —FGD rural woman, Sokoto

When the illness persists, we have no choice than to take the child to health facility for further diagnosis. —FGD rural woman, Sokoto

Poverty has also contributed to our belief in traditional medicine, but it is working to some extent, too.— FGD rural woman, Sokoto

My husband asked me once to take our ill child to chemist for medication, which I do, but, as the illness persisted, I took the child to hospital on my own and he was treated. But my husband was not happy with that, at all, that he does not want his child taken to where money will be demanded, as he does not have it. —FGD urban woman, Sokoto

We prefer to take our ill child to native doctor as they charge less fee, but if it did not work out, we go to chemist, and only when necessary we go to health facility. —FGD urban woman, Sokoto

When children are sick, sometimes it is spiritual attacks, we make use of herbs, while others believe in the use of hospitals.—FGD rural woman, Benue

We prevent communicable disease through avoidance of mosquito bite, immunization and vaccination, avoid dirty environment and they are contributing to provide boreholes for themselves.—FGD rural woman, Benue

The causes of communicable disease is bad water, dirty environment, and the disbelieve in health facility.—FGD urban woman, Benue

By immediately taking our children to the hospital when we notice there are issues will also help prevent communicable diseases.—FGD urban woman, Benue

The proximity and availability of health facilities and providers, coupled with traditional and religious beliefs, were identified as sociocultural determinants of health-seeking behavior. People sought spiritual assistance for treatment of illness and disease instead of visiting health facilities. The high cost of healthcare was mentioned as a strong determinant, and participants from rural communities suggested the popularity of traditional medicine could be driven by its lower cost and greater ease of access. Female participants mentioned that a lack of support from their spouses for taking sick children to the hospital inhibits their ability to seek medical attention. All participants believed that children with communicable disease, such as measles or cholera, should be quarantined and given proper care and treatment, instead of being treated by a traditional doctor. Fathers in Sokoto had a more prominent role in health-seeking behavior than did those in Benue, owing to religious factors, a more patriarchal culture, and a lack of economic empowerment for women.

Relationship of Children and Their Parents to the Community

The findings revealed strong social bonds and community support in both states. Female participants reported that community members show empathy for children with communicable diseases, though they are cautious to prevent the spread of disease. Both urban and rural settlers advocated that such children be quarantined and prohibited from playing with other children until they complete their treatment. However, some of the participants still believed that illness is strictly from God and God will heal a child with a communicable disease. Divine healing was frequently mentioned in Benue. Nonetheless, participants insisted that children receive regular immunizations. Some suggested that a health campaign, even a house-to-house campaign, and environmental sanitation should be carried out within the community to increase awareness in the event of a communicable disease outbreak.

Participants in rural communities reported that standing orders are in place to report cases of communicable diseases to the traditional heads of villages or communities. These traditional heads then investigate and ensure appropriate care and treatment is provided through existing partnerships with healthcare providers. One participant cited the example of how a recent cholera outbreak was managed with the assistance of the traditional leader. Participants also mentioned that religious leaders create awareness about managing communicable diseases among children. In both states, respondents noted the outreach and public education activities of community healthcare workers.

Support for Children with Communicable Illness

Participants in urban and rural areas recalled activities implemented by community-based organizations partnering with leaders in the community to distribute mosquito nets and raise awareness of immunizations. Participants said that community members advise families not to delay taking their sick

child to the hospital for proper diagnosis and treatment. Mothers reported that peer groups and health providers in their community provide awareness of how to manage childhood illnesses.

Some relevant community activities mentioned by participants were village committees providing advice on the benefits of seeking care at health facilities; advocacy outreach; advice and capacity building for caregivers on managing signs, symptoms, and treatment of childhood illnesses; and community environmental sanitation through the Know your Neighbors program. Regular (often monthly) environmental sanitation days are organized to clean the communities. During these, community members work to clean their environment, with the local government area (LGA) council supporting them by disposing of the waste.

Opinions on Ways to Prevent Childhood Communicable Illness

Most of the participants reported that parents should pay more attention to their children's hygiene, sanitation, and exposure to bad food. Prompt care and treatment of all illnesses and greater awareness of communicable diseases could help prevent the occurrence and spread of childhood illness. Some reported that community leaders should create committees to help handle local outbreaks of communicable diseases. Emphasis was placed on religious leaders creating more awareness and educating people during routine prayers and worship. Participants in all groups identified the need for parents, especially mothers, to be mindful of the type of dress their children wear during cold weather, as a way of preventing illness.

The practice of deliberately infecting uninfected children to serve as a form of immunity for the future infection is done. —FGD urban woman, Benue

We sprinkle palm wine on the body and eyes of infected children in the case of measles. —FGD urban woman, Benue

Barriers to Addressing Childhood Illnesses in Communities and the Way Forward

Availability of care; accessibility of health facilities; cost of accessing modern medicine; and myths and traditional, cultural, and religious beliefs were listed as barriers to addressing childhood illness in the community. Other barriers mentioned were complacent attitudes of parents, distance from a primary health center, and inadequate health providers in government health facilities in the community.

Most participants said the government should subsidize or pay for treatment of childhood illnesses and build more health facilities closer to communities, to improve access to care. They said that fathers should support taking ailing children to hospitals for treatment.

Constraints on hospital patronage was identified to be money and proximity of the hospital. Borrowing and personal saving was identified as source of money for treatment. It is important that government should come to our aid by subsidizing the cost of treatments. —FGD rural man, Benue

When there is no money to visit the hospital, we collect herbs. Our husband makes the decision on where to take our children to when sick; but in most cases, it is he or she who have the money that matters. —FGD urban woman, Benue

We do source money for treatment through personal savings, borrowing from local contribution, seek help from people around others they seek help from the church. —FGD urban woman, Benue

Summary of the Findings from Focus Group Discussions with Community Health Extension Workers

Community health extension workers from urban and rural communities participated in the FGD sessions. The average age for all participants was 32 years. All had received training as a CHEW and half were married at the time of the study. All the participants could speak the local language.

Community Health Extension Workers' Responsibilities

Community health extension workers are the first line of health provider within communities. They provide treatment for minor ailments. Some of the responsibilities of CHEWs that were identified across the locations and groups were community advocacy and awareness, sensitization and mobilization, screening and identifying children with communicable diseases, stabilizing and referring cases, giving immunizations, providing antenatal care, providing family planning, engaging in health talks on personal and environmental hygiene, dressing wounds from accidents, and distributing insecticide-treated nets (ITNs) within the community. Community health extension workers also reported having been trained on water sanitation and hygiene (WASH) services. Community health extension workers partner with community-based organizations to carry out these functions.

Skills Used by Community Health Extension Workers in the Provision of Community Health Services

Most of the CHEWs reported that they had received training on advocacy and mobilization as well as sensitization and treatment of minor health issues, stabilization and referral to the next level of healthcare, personal and environmental hygiene, and family planning and birth spacing. They said they were using these skills to serve their communities. In most cases, development partners were identified as the sources of pre-service and in-service training. Some participants also stated that they had benefited from on-the-job trainings and supportive supervision by development partners.

Policies Guiding Community Activities in the Management of Childhood Illnesses

Some of the participants reported being aware of the technical guidelines on the type and level of treatment that CHEWs can provide for children with communicable diseases, and the referral process. The government policy of not establishing dispensaries at remote villages affects the timing of offering services to a child with a communicable disease.

How a Child with Any Communicable Illness Is Identified

Participants said that childhood illnesses are identified through screening. In most cases, parents bring their sick children to a facility for treatment. During community outreach and sensitization programs, children with disease symptoms are identified and parents are advised to take the child to a health facility for treatment.

Information Provided to Caregivers to Prevent Communicable Childhood Diseases

Participants mentioned that children with communicable disease should be isolated until fully recovered, to prevent spread of disease. They said this message is communicated to caregivers through outreach, advocacy, and awareness and enlightenment programs. These programs provide information to caregivers on signs and symptoms of communicable diseases in children and instruct caregivers to hang ITNs and access WASH services.

Community health extension workers said they engage in periodic community outreach, targeting maternal and child health. Some of the activities mentioned were routine immunization, health talks, and follow-up and mobilization for environmental sanitation.

Treating Children with Communicable Diseases

Community health workers from both the urban and rural communities had a list of common childhood diseases and recommendations. For instance, although it is not medically correct, for pneumonia prevention CHEWs said they advise caregivers not to expose children to cold. For children with symptoms of pneumonia, they administer cough syrup, vitamin B complex, and paracetamol for at least three days before referral. For diarrhea, CHEW respondents said they administer oral rehydration salts (ORS)—a sugar and salt solution—followed by metro with Septrin, vitamin B complex, and multivitamins, if the child is not eating. For measles, CHEWs said they administer ointment, calamine lotion, vitamin A for the eye, and paracetamol to reduce fever. Community health extension workers said they give antibiotics for measles, even though that is not the recommended course of action and should only be considered if a secondary infection (such as pneumonia or an ear infection) is present.

Constraints Affecting Community Management of Childhood Illness and Recommendations

Some of the constraints mentioned by participants were a lack of dispensaries in remote villages (owing to government policy), an absence of ambulances for emergencies and referrals, a tradition of herbalists selling herbs house to house, a lack of electricity, long distances between facilities within the community, and a shortage of supplies.

They said that the government can improve treatment of childhood illnesses, by establishing dispensaries in remote villages; increasing staffing; and providing electricity, drugs, and supplies.

Summary Findings from Focus Group Discussions with Nurses and Midwives

This assessment explored information from nurses and midwives through FGDs in Benue and Sokoto states. Each discussion group consisted of eight to 10 participants.

Nurses' and Midwives' Responsibilities in for Preventing and Managing Childhood Illness

Nurses' and midwives' primary roles, as stated by the participants, were providing advice on healthseeking behavior, providing nutrition advice, carrying out health talks, administering drugs, engaging in personal hygiene education, monitoring growth of children, administering childhood immunizations, treating common illnesses, and providing referrals. Participants reported that they perform deliveries, give educational health talks, encourage caregivers to practice WASH, advise women on child spacing, and manage child communicable illness.

Understanding Integrated Community Case Management for Childhood Illness

Participants understood ICCM as accomplishing the following: teaching women in the community about balanced diet and good nutrition, healthy environmental practices, and benefits of immunization; advocating to community leaders in behalf of community health; encouraging proper dissemination of health information by community leaders; and ensuring proper referral to health facilities.

Participants were aware of guidelines on control of the six main killer diseases in CU5, how to treat malaria, and the use of ORS.

30 Evaluation of Integrated Community Case Management in Nigeria

Children with a Communicable Disease

Participants reported that community leaders work with them when they notice an outbreak of a communicable disease within their community. They said that when mothers identify a child with a communicable illness, they advise that the child should be isolated.

Some communicable diseases are seasonal and airborne. Some are the result of failure to use ITNs and poor environmental and personal hygiene. The providers said they inform women about good nutrition, environmental and proper handwashing practices, and proper management of the communicable diseases by the caregivers. They said they test children who show symptoms of illness—especially malaria—and treat using analgesics and Coartem, or any other artemisinin combination therapy for those who test positive.

Community-Directed Programs to Address Transmission of Childhood Communicable Illnesses

By following the guidelines in the community management of acute malnutrition program, communities identify children who have been malnourished, because of communicable illness. Such children are cared for and treated using a ready-to-use therapeutic treatment as the need arises. The program encourages community members to participate in proper environmental sanitation through regular health outreaches and health talks. (FMOH, 2015)

Constraints Affecting Community Management of Childhood Illness and Recommendations

Participants reported the following constraints: irregular payment of salaries, hard-to-reach areas with bad roads, poverty, ignorance, myths, and traditional cultural and religious beliefs.

Participants reported that to improve the situation, the government should provide more free drugs and encourage community leaders to disseminate health information. Fathers of young children should be encouraged to take their sick children to health facilities.

Summary Findings from KIIs with Traditional Leaders

Key informant interviews were conducted in both Benue and Sokoto states. Two KIIs were conducted in rural communities, and two KIIs were conducted in urban communities in both states, for a total of eight KIIs. Findings from these KIIs are highlighted in this section.

Handling Children with Communicable Diseases and Their Parents in the Community

According to these participants, the community provides health talks, outreach, sensitization meetings, and community dialogues, and it supports health providers during campaigns and interventions, especially immunization campaigns. Traditional leaders said they advise parents of children with communicable diseases to take the children to a health facility, cooperate with health providers, and practice better personal hygiene. They said they sometimes give caregivers money to pay for such treatment. However, according to the community leaders, whether the caregivers seek treatment depends on several personal factors, such as place of residence, occupation, awareness of childhood illnesses and treatment options, knowledge of child communicable diseases, and education level. They also mentioned external factors, such as distance from the health facility; availability of funds, transportation, and providers; accessibility of the health providers; and cost of transportation and drugs.

Lack of good hygiene was mentioned as the major determinant of health of people in their communities. Respondents mentioned a lack of home cleanliness, indiscriminate disposal of waste, allowing contaminated water in houses and compounds, etc. We are in rural areas, during the rainy season due to lack of drainage system, water use to lay fallow near our houses and environment there by breeding mosquitoess and cause malaria. Apart from that, children also suffer from diarrhea and vomiting as well. —KII with district head (rural), Sokoto

The role of mothers in taking care of their children is important. Lack of proper care of children in terms of not checking and preventing what they put into their mouth, non-washing of hands after playing and non-taking their birth regularly are also specific factors. —KII with district head (urban), Sokoto

Lack of hygiene brings many different sicknesses/illnesses. —IDI with district head (urban), Sokoto

Constraints Affecting Management of Childhood Illness and Recommendations

Traditional leaders revealed that most families could not afford to pay for modern treatment and medicines. Most communities do not pull resources together and government funding is insufficient to screen; identify; and provide care, support, and treatment for children with communicable diseases. The number of trained service providers is insufficient to handle cases at the health facilities. There is also a lack of cooperation and partnership between health providers and community leaders, especially with religious leaders.

These leaders said that communities should be encouraged to use more modern medicine to treat sick children. Community elders should be involved in immunization activities within the community. Traditional leaders also thought that health facilities should be near and accessible to communities and thatmore health talks should be encouraged.

Summary Findings from KIIs with the SMOH

These key informants were all from urban settlements and different departments in the SMOH. Two KIIs were conducted in both Sokoto and Benue SMOH. Each FGD had eight to 10 participants.

Strategies in Place to Prevent and Manage Childhood Communicable Illnesses

The following are some of the approaches that these informants said the SMOH is adopting to prevent and manage childhood illness: increasing the capacity of health providers, conducting training of trainers to supervise caregivers, and supporting peer-to-peer education. The SMOH has engaged community volunteers who encourage community members to manage childhood communicable diseases. Handwashing was introduced, and ITNs were distributed within the communities. The World Health Organization sponsored the community-based immunization program.

AvailableResourcesfor Treating Children with Communicable Illness

The FMOH receives funds from the United Nations Children's Fund (UNICEF), the World Health Organization (WHO), and USAID for itswork in communities. The FMOH dispenses these funds to communities directly, rather than channeling the money through the state government. In addition to sponsoring the community-based immunization program, WHO also supports capacity building and training activities for health providers in community-based health facilities.

Most KII participants were familiar with the National Framework on ICCM at the local government level but one reported that he has no knowledge of it.

Working Relationship between Different Cadres of Healthcare Workers

These participants said there is a cordial working relationship among health workers. UNICEF provides them with technical assistance to build their capacity through trainings and encourages them to refer cases to providers in different cadres.

Knowledge of What Health Workers Should Do When a Child Manifests Symptoms of Malaria, Diarrhea, and Pneumonia

The treatment guideline specifies that health workers should administer antimalarial drugs and paracetamol for confirmed malaria cases in children. For diarrhea, children should be given a zinc tablet and ORS. The child's caregiver should be counseled on personal hygiene. For pneumonia, health workers at primary health centers are required to refer patients to the nearest general hospital. Participants were aware of these requirements.

Specific Community-Directed Interventions in Place to Control Childhood Illnesses

Participants said that the government is conducting surveillance on all childhood communicable diseases and working with trained community resource persons. Community volunteers are being trained on how to manage child communicable diseases within the community. The government is developing partnerships with implementing partners to establish other community-based interventions, like the partnership for transforming the health system, which is captured in the national ICCM implementation framework (Figure 1) (FMOH, 2015). By having a single national ICCM model, community needs can be identified and addressed at various levels by an implementing partner.

Community Participation in Controlling Childhood Illnesses

Participants reported that communities and LGAs work to encourage parents of children with communicable diseases to take them to the hospital and possibly isolate the child from others. Good personal hygiene is emphasized. Community resource persons are encouraged to participate in designing programs for the community.

Constraints Affecting ICCM of Childhood Illness and Recommendations

A CHEW who participated in the KIIs reported that the distance to the health facility, the availability and accessibility of health providers, and the cost of service delivery are barriers to effective management of childhood communicable disease. The community resource persons often request a bicycle or motorcycle and stipend to carry out their community activities.

Participants offered several recommendations, as follows. To address childhood communicable diseases, communities should discourage open defecation. Government funding must increase to build more health facilities, employ and train more health providers, support more community involvement to improve acceptance of immunizations, and establish partnerships with more civil society organizations and nongovernmental organizations. Mothers should seek medical attention immediately when their children show any signs of communicable diseases.

DISCUSSION

This study assessed the contribution of ICCM to treatment coverage of childhood illness in Nigeria. The NDHS provided information on occurrence of childhood illnesses and treatment-seeking for childhood illness, and qualitative interviews among community members and government stakeholders provided insight into factors affecting treatment-seeking. A general reduction in incidence of childhood illnesses was observed between 2008 and 2011, with most treatment for childhood illnesses sought from facility-based healthcare providers.

The results showed higher episodes of childhood illness in rural communities than in urban ones. This is not surprising; Nigerian children in rural areas lack basic amenities such as potable water and access to health facilities and providers, and they are more likely to experience poverty and neglect.

Caregivers' level of education is a significant factor in the incidence of childhood illness and the likelihood that illness will be treated. This study revealed that incidence of diseases such as diarrhea, pneumonia, and fever drops as the level of education of caregivers increases. This relationship underscores the need to prioritize sensitization and awareness programs on prevention and treatment of childhood illnesses, to equip caregivers with knowledge and skills to prevent malaria, diarrhea, and pneumonia and to know what to do when symptoms of any of these illnesses manifest. Studies have shown that women who have access to information, either through antenatal care, mass media, or a routine awareness program, are more likely to adopt positive life-changing behavior and products related to treatment-seeking for CU5 presenting symptoms of any of the childhood illnesses mentioned (Adepoju, et al, 2005; Ankomah, et al., 2013; Fakolade, et al., 2010). Findings from the qualitative interviews revealed misconceptions about causes of childhood illnesses. Some caregivers attribute illnesses to spiritual attacks and believe in treatment from spiritual leaders. This belief is often correlated with level of education and place of residence (Glaeser & Bruce, 2008).

The study revealed a North/South divide in occurrence of childhood illnesses and treatment-seeking behavior, with caregivers from southern Nigeria experiencing fewer episodes of childhood illnesses than their counterparts in northern Nigeria. Treatment-seeking seems to be higher in southern Nigeria than northern Nigeria. Studies have revealed that northern Nigeria is predominantly rural, with lower levels of education among women. The qualitative results also revealed sociocultural factors that influence health-seeking behavior among caregivers. Women, who are generally the primary caregivers, have limited decision-making power, especially in northern Nigeria. Furthermore, the average age of caregivers in northern Nigeria is much lower than that of caregivers in southern Nigeria, owing to early marriage and early childbearing. A mix of these factors continues to make northern Nigeria more vulnerable than southern Nigeria to the spread of disease, especially among CU5 (Adebayo, et al, 2013; Ipadeola, et al., 2013; Muhammad, et al., 2013).

Caregivers' socioeconomic status contributes significantly to incidence and treatment of childhood illnesses. Treatment-seeking in health facilities is more frequent among caregivers in higher wealth quintiles than those in lower wealth quintiles. Treatments for childhood illnesses are not free in Nigerian health facilities. Owing to lack of funds, poorer caregivers often seek care from traditional healers who charge less than health facilities, or they administer home remedies and hope the disease or illness cures itself. The study revealed that, in some situations, community leaders had to provide money for caregivers to seek medical attention for sick children. As indicated by the qualitative interviews, a strong awareness within rural communities of the need to seek medical treatment for illnesses in CU5, coupled with financial assistance from community leaders and emotional support from other community members may have been responsible for the better treatment-seeking behavior observed among caregivers in rural communities than those in urban communities.

Women's empowerment has been shown to positively affect health-seeking behavior and prevent mortality from childhood illness in CU5 (Manidun, et al., 2015; Sado, et al., 2014; Jennings, et al., 2014; Thorpe, et al., 2016). When women are empowered to make important decisions for themselves and their children, such as the decision to seek appropriate and timely medical care, the family benefits. The study revealed an absence of spousal support; male family members did not provide adequate funds for medical treatment of childhood illnesses, nor did they take the sick child to the health facility for treatment. Women believed men should support medical care for children and provide adequate funds to cover transportation and treatment. Because mothers have many domestic responsibilities that compete with the need to seek prompt medical attention for sick children, children often receive medical care very late, and women continue to provide palliative care until the situation worsens. Continued advocacy for spousal support—like that often conducted in other health areas, such as family planning, antenatal care, and prevention of mother to child transmission of HIV—is necessary for the treatment of childhood illnesses. This is likely to improve treatment-seeking and prevent mortality among CU5 with malaria, diarrhea, or pneumonia (Olugbenga-Bello, et al, 2013; Ijadunola, et al., 2010; Vehvilainen-Julkenen & Emelonye, 2014).

The community plays a major role in preventing and treating childhood illnesses. Findings from the focus groups revealed awareness of childhood illnesses among both the men and the women. Community members provided advice on treatment-seeking and reported cases of childhood illnesses to traditional leaders and health facilities. This was a result of several community-based campaigns and awareness programs. Community leaders interviewed for this study provided insight into some of the community-led awareness programs regularly conducted to sensitize people on identifying symptoms of childhood illnesses, such as malaria and diarrhea. These community leaders used this forum to provide information on prevention, including the use of bed nets to prevent mosquito bites, environmental sanitation, and handwashing. The study revealed a need for increased involvement of religious leaders to reduce childhood illnesses. Participants mentioned that religious leaders should use their platform and influence to further sensitize people to the importance of seeking medical treatment for childhood illnesses. Involving community and religious leaders has proven to be an effective strategy for addressing diseases such as HIV and malaria, curtailing stigma and discrimination, and promoting women's empowerment (Orubuloye, et al., 1993; Adiel, et al., 2014; Adebayo, et al., 2012).

Interviews with government stakeholders revealed the lack of government support and funding as a major challenge to implementing ICCM. This lack of support has led to a lack of supplies of consumables, too few facilities, and infrastructural decay in most facilities. The Government of Nigeria's health budget relies heavily on donor funds, which have been insufficient for nationwide implementation of ICCM. Abia and Niger states were the first to pilot ICCM in Nigeria, through the WHO-funded Rapid Access Expansion project. This project is intended to catalyze the scale-up of ICCM, by increasing access to prompt diagnosis and treatment of childhood illnesses at the community level, with a strong link to health facilities to facilitate referral. In Niger state, donor agencies are supporting ICCM in 23 LGAs. Although the state government is supposed to be supporting the remaining three LGAs, ICCMis not being implemented, owing to a lack of funds. Even in donor-supported LGAs, implementation of ICCM is in an early phase, with mapping and training of community resource persons ongoing. Implementation in the community has not commenced. Furthermore, ICCM is being implemented in Adamawa and Kebbi states with funding from the European Union and UNICEF. State trainers have been identified and trained. Two thousand community resources persons are expected to be involved in community-level implementation in both states.

The government stakeholders we interviewed said they believe that the success of ICCM in Nigeria depends largely on the government's ability to institute a strong health system, with smooth commodity logistics management, monitoring, and supportive supervision.

CONCLUSION

The study identified significant barriers and enablers to treatment-seeking for childhood illness and provided insight into the implementation of ICCM in Nigeria. Reducing the incidence of childhood illnesses in CU5 will require concerted effort by households, communities, traditional and religious leaders, government policymakers, donor agencies, and implementing partners. Though government's role in providing an enabling environment though policy formulation is essential, budget allocation and release of funds for implementation of ICCM is crucial to nationwide implementation of the strategy. This study identified the need for government to promote treatment-seeking though provision of free services for childhood illnesses and continuous sensitization programs. The study concluded that there is high anticipation for community-led healthcare delivery, and implementation of the ICCM will be received with high acceptance, especially in rural Nigerian communities. Finally, future demographic and health surveys in Nigeria should collect data on implementation of ICCM, to provide nationally representative information on the program's implementation, uptake, and coverage.

REFERENCES

Adebayo, S.B., Fakolade, R., Anyanti, J., Ekweremadu, B., Ladipo, O. &Ankomah, A. (2011). Modelling level, trend and geographical variations in stigma and discrimination against people living with HIV/AIDS in Nigeria. *SAHARA-J: Journal of Social Aspects of HIV/AIDS: An Open Access Journal, 8*(3)115–127. Retrieved from http://www.tandfonline.com/doi/abs/10.1080/17290376.2011.9724994

Adebayo, S.B., Gayawan, E., Ujuju, C., & Ankomah, A. (2013). Modelling geographical variations and determinants of use of modern family planning methods among women of reproductive age in Nigeria. *Journal of Biosocial Science*,45(1), 57–77. Retrieved from<u>https://www.ncbi.nlm.nih.gov/pubmed/22739073</u>

Adepoju, E. G., Onajole, A. T., Oreagba, L. O., Odeyemi, K. A., Ogunnowo, B. O., & Olayemi, S. O. (2005). Health education and caregivers' management of malaria among under fives in Ede North L.G.A., Osun State of Nigeria. *Nigerian Medical Practitioner, 48*(4), 72–81. Retrieved from https://www.ajol.info/index.php/nmp/article/view/28810

Ankomah, S. B., Adebayo, E. D., Arogundade, J., Anyanti, E., Nwokolo, E., Inyang, U., Ipadeola, O. B., &Meremiku, M. (2014). The effect of mass media campaign on the use of insecticide treated bed nets among pregnant women in Nigeria. *Malaria Research and Treatment*. Retrieved from https://www.msh.org/resources/the-effect-of-mass-media-campaign-on-the-use-of-insecticide-treated-bed-nets-among

Fakolade, R., Adebayo, S.B., Anyanti, J., & Ankomah, A. (2010). The impact of exposure to mass media campaigns and social support on levels and trends of HIV-related stigma and discrimination in Nigeria: Tools for enhancing effective HIV prevention programmes. *Journal of Biosocial Science*, *42*(3), 395–407. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/20018118

Federal Ministry of Health (FMOH) (2006). Draft national child health policy. Abuja, Nigeria: FMOH. Retrieved from<u>http://elearning.trree.org/pluginfile.php/34691/mod_folder/content/0/3_5-ChildHealthPolicy-2006.pdf?forcedownload=1</u>

Federal Ministry of Health (FMOH). (2013). National guideline for the implementation of integrated community case management of childhood illness in Nigeria. Abuja, Nigeria: FMOH. Retrieved from<u>http://www.mchip.net/sites/default/files/mchipfiles/DRCLongEnglish.pdf</u>)

Federal Ministry of Health [Nigeria] (2015). The National Integrated Community Case Management (iCCM) Implementation Framework: A Roadmap to iCCM implementation in Nigeria. Abuja, Nigeria

Glaeser, E. L., & Sacerdote, B. I. (2008). Education and religion. *Journal of Human Capital, 2*(2):188–215. Retrieved from <u>http://www.nber.org/papers/w8080</u>

Adie, H., Igbang, T., Otu, A., Braide, E., Okon, O., Ikpi, E., Joseph, C., Desousa, A., & Sommerfeld, J. (2014). Strengthening primary healthcare through community involvement in Cross River State, Nigeria: A descriptive study. *The Pan African Medical Journal*, *17*(221). Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/25237418

Ijadunola, M. Y., Abiona, T. C., Ijadunola, K. T., Afolabi, O. T., Esimai, O. A., & Ola-Olorun, F. M. (2010). Male involvement in family planning decision making in Ile-Ife, Osun State, Nigeria. *African Journal of Reproductive Health, 14*(4):45–52. Retrieved from <u>https://www.ncbi.nlm.nih.gov/pubmed/21812197</u>

Jennings, L., Na, M., Cherewick, M., Hindin, M., Mullany, B., &Ahmed, S. (2014). Women's empowerment and male involvement in antenatal care: analyses of demographic and health surveys (DHS) in selected African countries. *BMC Pregnancy and Childbirth*, 14(297). Retrieved from https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/1471-2393-14-297

Mainuddin, A. K. M., Begum, H. A., Rawal, L. B., Islam, A., & Shariful Islam, S. M. (2015). Women empowerment and its relation with health seeking behavior in Bangladesh. *Journal of Family and Reproductive Health*, 9(2), 65–73. Retrieved from <u>https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4500817/</u>

Marsh, D. R., Gilroy, K. E., Van de Weerdt, R., Wansi, E., &Qazi, S. (2008) Community case management of pneumonia: At a tipping point? *Bulletin of theWorld Health Organization, 86.* 381–389. <u>Retrieved from http://www.who.int/bulletin/volumes/86/5/07-048462.pdf</u>

Monitoring and Evaluation to Assess and Use Results Demographic and Health Surveys (MEASURE DHS). (2008 and 2013). Retrieved from <u>http://www.measuredhs.com</u>

Ibrahim, M., Ipadeola, O., Adebayo, S.B., & Fatusi, A. (2013). Socio-demographic determinants of HIV counseling and testing uptake among young people in Nigeria (2013). *International Journal of Prevention and Treatment*, 2(3),23–31. Retrieved from http://article.sapub.org/10.5923.j.ijpt.20130203.01.html

National Population Commission (NPC) [Nigeria] and ICF International. (2009). Nigeria demographic and health survey 2008. Abuja, Nigeria, and Rockville, Maryland, USA: NPC &ICF International.

National Population Commission (NPC) [Nigeria] and ICF International. (2014). *Nigeria demographic and health survey 2013*. Abuja, Nigeria, and Rockville, Maryland, USA: NPC &ICF International. Retrieved from https://dhsprogram.com/pubs/pdf/FR293/FR293.pdf

Ipadeola, O., Adebayo, S.B., Anyanti, J., &Jolayemi, E.T. (2013). Poverty levels and maternal nutritional status as determinants of weight at birth: An ordinal logistic regression approach. *International Journal of Statistics and Applications*, *3*(3), 50–58. Retrieved from http://article.sapub.org/10.5923.j.statistics.20130303.03.html

Olugbenga-Bello, A., Asekun-Olarinoye, E.O., Adewole, A.O., Adeomi, A.A., & Olarewaju, S.O. (2013). Perception, attitude, and involvement of men in maternal health care in a Nigerian community. *Academic Journals*, *5*(6), 262–270. Retrieved from <u>http://www.academicjournals.org/journal/JPHE/article-abstract/7BF1FF25254</u>

Orubuloye, I., Caldwell, J., & Caldwell, P. (1993). The role of religious leaders in changing sexual behaviour in Southwest Nigeria in an era of AIDS. *Health Transition Review*, *3*, 93–104. Retrieved from http://www.jstor.org/stable/40652064

Sado, L., Spaho, A., &Hotchkiss, D. R. (2014). The influence of women's empowerment on maternal health care utilization: Evidence from Albania. *Social Science Medicine*,114, 169–77. Retrieved from. https://www.ncbi.nlm.nih.gov/pubmed/24929918

Thorpe, S., Van derEnde, K., Peters, C., Bardin, L., &Yount, K. M. (2016). The influence of women's empowerment on child immunization coverage in low, lower-middle, and upper-middle income countries: A systematic review of the literature. *Maternal and Child Health Journal*,20(1):172–86. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/26511131

United States Department of Health, Education, and Welfare. (1978). *The Belmont report: Ethical principles and guidelines for the protection of human subjects of research*. Washington, DC, USA: U.S. Government Printing Office. Retrieved from https://repository.library.georgetown.edu/handle/10822/779133?show=full

Vehviläinen-Julkunen, K.& Emelonye, A. U. (2014). Spousal participation in labor and delivery in Nigeria. *Annals of Medical and Health Science Research*,4, 511–515. Retrieved from <u>https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4160671/</u>

MEASURE Evaluation

University of North Carolina at Chapel Hill 400 Meadowmont Village Circle, 3rd Floor Chapel Hill, North Carolina 27517 Phone: +1-919-445-9359 •<u>measure@unc.edu</u>

www.measureevaluation.org

This publication was produced with the support of the United States Agency for International Development (USAID) under the terms of MEASURE Evaluation cooperative agreement AID-OAA-L-14-00004. MEASURE Evaluation is implemented by the Carolina Population Center, University of North Carolina at Chapel Hill in partnership with ICF International; John Snow, Inc.; Management Sciences for Health; Palladium; and Tulane University. Views expressed are not necessarily those of USAID or the United States government. WP-17-186



