

Nigeria Agricultural Policy Project

Study of the Determinants of Chronic Malnutrition in Northern Nigeria:

Qualitative Evidence from Kebbi and Bauchi States

By

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Food Security Policy *Research Papers*

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ABSTRACT

The burden in northern Nigeria of chronic malnutrition, particularly undernutrition, is among the heaviest globally. Close to half of all under-fives in the Northeast and Northwest geopolitical zones were estimated to be stunted in their growth for their age in 2013, compared to 22 percent in the rest of Nigeria. To inform discussions on future programming to address drivers of undernutrition, a rapid scoping study of chronic malnutrition in northern Nigeria was conducted. This report presents findings drawn from interviews with key informants and focus group discussions in Kebbi and Bauchi states and in Abuja conducted in April and May 2017.

Drawing on the UNICEF conceptual framework of the determinants of child nutritional status, we observed:

- Food security – Sufficient food is available in northern Nigeria. However, due to poverty, many households are unable to reliably access the quantity and types of food they require.
- Water, sanitation, and access to public health services and health facilities – There is low use of the public health and medical services provided in northern Nigeria. Clinics are often understaffed, and the dominance of male staff poses a cultural barrier to use by women.
- Nutritional caring practices – Poor care is the dominant determinant of the high levels of chronic undernutrition observed in northern Nigeria. However, given the limited education most mothers of young children have received, ensuring that they have the knowledge to effectively provide proper nutritional care to their young children is a significant challenge.
- Gender – Poor nutritional care is an outcome, in part, of the relative social and economic disempowerment of women in carrying out their nutritional care roles and in obtaining information on proper care. Women do not have control over sufficient resources or have access to sufficient knowledge so that both they and their children can live reliably healthy and well-nourished lives.

The recommendations for future nutrition programs drawn from this study include:

- Strengthen flows of information and carry out social mobilization to promote use of optimal nutritional care practices. Such efforts will require a ‘whole community’ approach, rather than only targeting the principal care-givers of young children, their mothers.
- Increased training in northern Nigeria on public health nutrition at all levels, from primary school through to post-graduate. Health personnel particularly need a deeper understanding of what needs to be done to improve child and maternal nutrition in their communities.
- Research on several important knowledge gaps related to nutrition in northern Nigeria.
- Step up political mobilization efforts at state and LGA levels to address chronic undernutrition – particularly efforts focused on the allocation of increased resources, rather than on formulating policy positions alone.

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List of ACRONYMS

BMI	Body mass index
CMAM	Community-based Management of Acute Malnutrition
DHS	Demographic and Health Survey
FOMWAN	Federation of Muslim Women’s Organizations of Nigeria
GHSP	LSMS-Integrated Surveys on Agriculture – General Household Survey Panel
HAZ	height-for-age z-score

IFPRI	International Food Policy Research Institute
IYCF	Infant and young child feeding
LGA	Local Government Area
NDHS	Nigeria Demographic and Health Survey
NNHS	National Nutrition and Health Survey
ORIE	Nutrition Operations Research and Impact Evaluation (project)
PHCDA	Primary Health Care Development Agency
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHZ	weight-for-height z-score
WINNN	Working to Improve Nutrition in Northern Nigeria (project)

1. INTRODUCTION

The burden of chronic malnutrition – in particular, undernutrition – borne by the population of northern Nigeria is one of the heaviest globally. Close to half of all children under five years of age in the Northeast and Northwest geopolitical zones of the country were estimated to be stunted in their growth (height) for their age in 2013 (height-for-age z-score (HAZ) < -2.0), compared to 22 percent of children in the rest of Nigeria, and 2.3 percent in the well-nourished population of young children globally from which the child growth standards are derived (NPC and ICF International 2014; de Onis and Blössner 1997). Stunting in young children is an indicator of chronic undernutrition that crosses generations, being a consequence of maternal undernutrition during pregnancy, which adversely affects fetal growth, coupled with poor diet and feeding practices and adverse health shocks faced by the infant during the first two years of life (Black et al. 2013). Stunted growth is the result of a range of factors, including both immediate determinants, like the quality of nutritional care or diet that the child receives, and more basic, such as the empowerment of the child's mother, typically the principal caregiver of the young child, in terms of the knowledge and economic resources that she can draw upon to provide the best possible care to the child. The cognitive development of the young child is impeded as this retardation in physical growth affects the child's brain development. The impact of such stunting in physical and mental development on the well-being and economic prospects over the lifespan of the child as she or he grows to adulthood is uniformly adverse, resulting in generally lower educational attainment, lower economic productivity, increased morbidity, and shorter life expectancy. More broadly, chronic undernutrition is a significant barrier to Nigeria's sustained progress in human and economic development for the benefit of all its citizens.

However, improving nutrition, particularly in the north, is not the development priority for the government of Nigeria as the scale of the burden of undernutrition suggests that it should be (ORIE 2015). Important efforts to sharply improve the growth trajectories of young children in northern Nigeria are being made by government agencies at federal, state, and local government levels, working with development partners and international and local non-governmental and civil society organizations. These include ensuring that the parents of young children have better access to knowledge of good infant and young child feeding (ICYF) practices, providing antenatal clinics for pregnant women and well-child clinics for infants, addressing micronutrient deficiencies through the provision of supplements, increasing investments for the effective management of acutely undernourished children, and advocacy efforts to increase the flow of public resources to improve the nutritional status of young children and their mothers. The efforts now being made are not sufficient to address the problem. While small gains have been achieved in reducing the level of undernutrition in the country, progress is slow and not always positive, particularly in northern Nigeria. For example, the prevalence of stunted under-fives in the Northwest geopolitical zone rose from 52.6 percent in 2008 to 54.8 percent in 2013 (NPC and ICF Macro 2009; NPC and ICF International 2014). While important policy statements to prioritize efforts to reduce the prevalence of undernutrition in Nigeria have been formulated and endorsed by the leaders of the country, its states and local governments, and its communities, when it comes to mobilizing the resources to act to realize these objectives, resources are used for other purposes than to establish a strong nutritional foundation for the children of Nigeria so that they can realize their full potential. A combination of efforts of much greater scope than is possible with the resources now being provided is needed to address chronic undernutrition in Nigeria.

Study Objectives and Design

The Nigeria mission of the United States Agency for International Development (USAID/Nigeria) has a long history of engagement in efforts that seek to sharply reduce malnutrition in Nigeria through its support to programs with improved nutrition objectives that have been implemented by international and national NGOs. To guide planning for these future investments, the mission requested a team of researchers from the

International Food Policy Research Institute (IFPRI) to conduct a rapid scoping study on the determinants of chronic malnutrition in northern Nigeria.^{0F}¹ This is a report on the qualitative components of this study.^{1F}² The principal output desired from the overall study was a set of recommendations for investments to significantly advance reductions in malnutrition in Nigeria. While the main motivation for the study was to contribute to the design of efforts to address the high levels of undernutrition in northern Nigeria, USAID/Nigeria emphasized that investment options that would be broadly applicable across the country in both the north and the south would be of greatest interest. That is, those options for future activities to address chronic undernutrition in northern Nigeria that were likely to have significant positive spillovers for malnourished children and women of childbearing age elsewhere in Nigeria would be preferred over those that do not have such spillovers.

As USAID/Nigeria requested this scoping study to inform discussions on future investments that it planned to hold internally and with stakeholders in public health nutrition in Nigeria in mid-2017, trade-offs were made in the design of the assessment between a comprehensive and rigorous treatment of the issues and the rapid generation of output from the study. Preparations for the scoping study began in January 2017 with compilation of literature for review and initial quantitative analyses of the determinants of stunting in young children in northern Nigeria using data from the 2008 and 2013 Nigeria Demographic and Health Surveys (NDHS). The month of April 2017 was spent doing a series of qualitative one-on-one interviews and focus group discussions in Kebbi and Bauchi states and in Abuja. A draft study report was submitted in mid-May for review, with a final extensively revised report submitted in late-June.

USAID/Nigeria requested that IFPRI conduct the local-level fieldwork – primarily key informant interviews and focus group discussions – for the scoping study in Kebbi and Bauchi states (Figure 1). Bauchi is a focus state for health, population, and nutrition related investments of USAID/Nigeria where several projects related to health systems strengthening and orphans and vulnerable children have been carried out with support from USAID. Kebbi State is a focus state of the Feed the Future initiative of the US government to combat global hunger and poverty.

Both states are reasonably representative of the agroecological and socioeconomic conditions of the Northeast and Northwest zones of Nigeria, particularly the northern half of each state where most of the fieldwork for the study was done. Climatically, both states experience strongly seasonal rainfall patterns with the rains coming in April/May and ending in September. Sorghum is the dominant staple on dryland farms in the northern zones of both states, with pearl millet in drier areas and maize in the wetter southern areas. Both states have extensive areas of irrigated *fadama* cropland on which rice is the principal staple crop produced, particularly in Kebbi state. Communities in the northern parts of both states are part of the broader

¹ IFPRI is implementing with Michigan State University the Feed the Future Nigeria Agricultural Policy Project, for which financial support is provided by USAID/Nigeria. This study was undertaken as an activity under this project.

² This qualitative study of the determinants of chronic malnutrition in northern Nigeria was conducted at the request of the Nigeria mission of the United States Agency for International Development. The original report to USAID/Nigeria on the overall study combined the material presented in this working paper with the results of a quantitative assessment of the determinants of child stunting in northern Nigeria that was based on an econometric analysis of data from the 2008 and 2013 Nigeria Demographic and Health Survey. While the results of the quantitative study informed in important ways the qualitative analysis here, the two studies can stand on their own as research reports. Consequently, this Nigeria Strategy Support Program (NSSP) Working Paper no. 44 presents the results of the qualitative component of the overall study, while NSSP Working Paper no. 45 (Amare et al. 2017), published in parallel, presents the results of a quantitative analysis of the NDHS datasets.

Hausa/Fulani cultural area of northern Nigeria and southern Niger. Virtually all communities in the northern areas of the two states are Muslim, while more heterogeneity is seen in the southern part of both states, with Christian communities being common. Neither state has recently been directly attacked by the Boko Haram insurgents, who are centered in Borno state in the far northeast. Bauchi between 2009 and 2015 suffered insurgent attacks and inflows of internally displaced persons from other states in the Northeast. However, at the time of fieldwork in 2017 the security situation in Bauchi state was guardedly stable.

Figure 1. Map of geopolitical zones and states of Nigeria, with Kebbi and Bauchi states highlighted



Source: Authors

Within Kebbi state, fieldwork was conducted primarily in Aliero Local Government Area (LGA) in the northern part of the state, while in Bauchi state, interviews and focus group discussions were conducted with agencies and in communities in Misau LGA also in the northern part of that state. These interviews and discussions were facilitated by locally-hired consultants who were familiar with many of the activities of government and development projects in the study areas that had a nutrition focus or included nutrition outcomes in their design. These facilitators were either current or former staff members of such projects. Where discussions could not be done in English, the facilitators translated from Hausa. Interviews were also conducted in Abuja with federal-level nutrition stakeholders.

Prior to beginning the fieldwork, a generic set of respondents was established for initial interviews based on the focus of the study. However, in each interview, the respondent(s) was asked to suggest other individuals whom they thought it would be valuable for the study team to interview – a snowball sampling approach. The time available for conducting the interviews while ensuring an on-time delivery to USAID/Nigeria of the initial report on the study is the main factor that limited the size of the sample of respondents.

All study team members took notes at each interview and discussion in which they participated, transcribing the notes into a computer file within 36 hours. In total, 67 interviews or focus group discussions were held.

Annex 1 lists these interviews and focus group discussions carried out during fieldwork for this scoping study, as well as provides additional detail on how respondents were selected. Annex 2 presents the guide used for interviews in Abuja, which Annex 3 presents that used in Kebbi and Bauchi states.

Given that the research presented in this paper was based on a rapid scoping study, we expect that elements of it will need to be revisited and examined in greater detail based on the directions taken in any future discussions informed by this report.

2. ZONAL AND DEMOGRAPHIC FOCUS OF THE STUDY

Several dimensions of the study are defined in more detail here – in particular, what adverse nutritional outcomes, what areas of Nigeria, and whose nutritional conditions are of interest in undertaking the study.

Chronic versus acute undernutrition

The study focused on chronic malnutrition in northern Nigeria, in particular chronic undernutrition, rather than acute undernutrition. This is an important programmatic distinction. Acute undernutrition generally reflects an emergency situation tied to a sharp adverse health shock or restricted dietary intake where immediate action is necessary to save the lives of those affected. In contrast, chronic undernutrition is the cumulative outcome of multiple factors, including maternal nutritional and health status, diet, patterns of infection and other illness, access to public health services, and many others, that impact on the growth of individuals over months and years.

Effective interventions to address chronic undernutrition are designed to prevent the development of acute undernutrition, generally are done over a long time period, and often are not nutrition-specific, but, rather are nutrition-sensitive, involving inputs from multiple sectors, including health, agriculture, education, and others. In contrast, acutely undernourished individuals are at risk of death due to sharp reductions in dietary intake or due to illness that prevents the individual from making effective use of any food consumed. Acute undernutrition is characterized by wasting (low weight-for-height) or severe thinness. Addressing acute undernutrition often requires clinical or close community-based management of the diet and health of acutely undernourished individuals, actions which generally are led by health sector personnel.

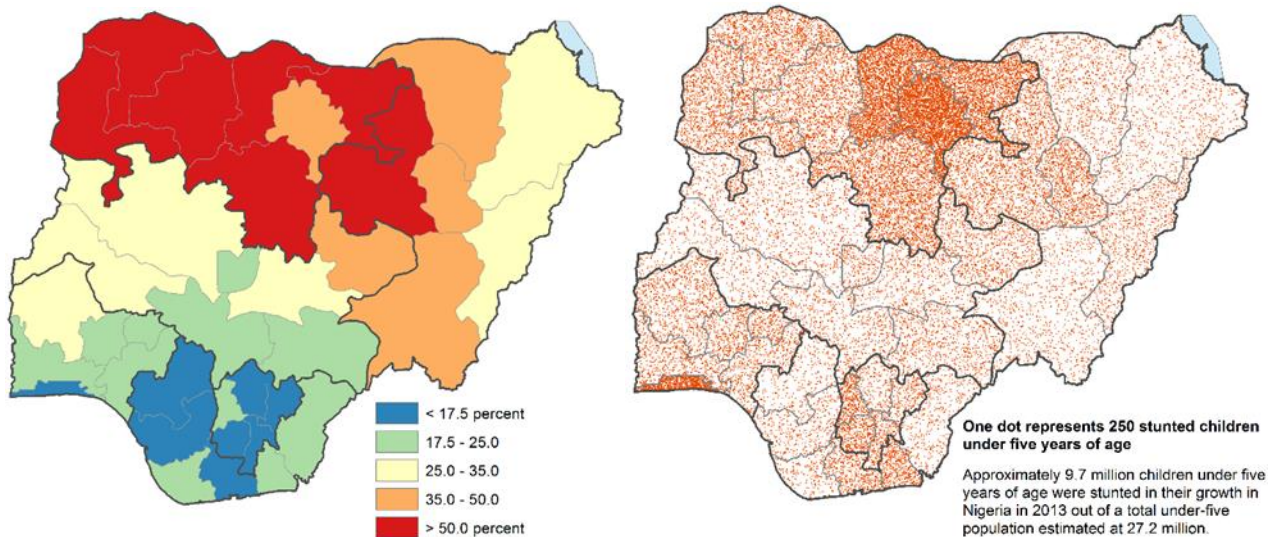
Delineating northern Nigeria

Although the qualitative fieldwork was done in Kebbi and Bauchi states, the terms of reference for the study specified it should be undertaken with reference to northern Nigeria broadly. A definition of northern Nigeria was an initial step in developing this study. A review of the spatial dimensions of stunting in young children in Nigeria makes it clear that the Northwest geopolitical zone of the country has the highest prevalence, followed by the Northeast zone (Figure 2).^{2F3} Estimates of stunting prevalence from the 2013 NDHS and population projections for 2013 from the 2006 Census for under-fives at state level indicate that 49 percent

³ The heavy stippling in Kano and Lagos states in the right map in Figure 2 show that both states have relatively high numbers of stunted children, even though, given their high populations, the prevalence rates for children who are stunted in each state is less (and for Lagos, significantly less) than prevalence rates seen in other states in the Northwest zone, in particular.

of all stunted under-fives in 2013 in Nigeria were in the Northwest zone of the country; 19 percent in the Northeast.

Figure 2. Stunting in children under five years of age in Nigeria in 2013, shaded area map of stunting prevalence (left) and dot map of the number of stunted children (right), by state



Source: Analysis by authors of NDHS 2013 and NPC 2006

Based on this assessment, our zonal area of focus for our broader analyses was on the Northwest and Northeast zones of the country. Any consideration of undernutrition in the other four zones primarily is done for comparative purposes. Where the term ‘northern Nigeria’ is used hereafter in this paper, this usage refers to these two zones.

The nutritionally vulnerable of interest

All individuals are at risk of becoming malnourished to some degree. However, the developmental consequences of being malnourished for the individual and for society as a whole differ significantly between individuals. It is young children under two years of age, their mothers, and all women of childbearing age, plus adolescent girls, for whom undernutrition is most likely to have the most adverse consequences for themselves, their households and communities, and for Nigeria. It is undernutrition in these demographic groups – particularly young children – that was the subject of the scoping study.

The rationale for this is tied to the developmental window of opportunity of the 1,000 days from conception through the child’s second birthday during which the greatest returns to effective action to prevent undernutrition are realized (Black et al. 2013). It is particularly at the start of the life cycle when it is important that young children and the mothers who bear them are properly nourished. Women of reproductive age and adolescent girls must receive proper nutrition so that when they are pregnant they can properly nourish their children in utero from the time of conception until birth. Healthy, well-nourished mothers (and future mothers) are considerably more likely to give birth to and be able to nurture and raise healthy children. After

birth, proper feeding and care needs to be provided infants so that their physical and mental growth is maintained. Interventions when children are older – indeed, even after the second birthday – often cannot undo the damage done by undernutrition during the first 1,000 days. By ensuring that young children and their mothers are well nourished, households and communities in Nigeria are laying an essential element of the foundation for an increasingly intelligent, creative, and healthy population from which to build a better and more prosperous future.

Consequently, in conducting this scoping study, our focus was on infants and young children and their mothers, both women of reproductive age and adolescent girls who will become mothers in later years. However, these two target groups cannot be served in isolation. Most causes of undernutrition are linked to practices or to access to resources at household or community levels. In consequence, efforts to address chronic undernutrition in Nigeria, even if focused directly on young children and women of childbearing age, will indirectly address to a significant degree the nutritional needs of all Nigerians.

3. UNDERNUTRITION IN NORTHERN NIGERIA

An overview of undernutrition in northern Nigeria relative to the rest of the country is provided here to describe the nutritional context for the scoping study. This is followed by a description of the UNICEF conceptual framework of the determinants of child nutritional status which was used to guide the study.

Review of recent statistics on child nutrition

Table 1 presents recent statistics on young child and maternal nutritional status for northern Nigeria, the rest of the country, and, where possible, for Bauchi and Kebbi states. For consistency, most of the estimates in this report are drawn from the reports on the 2008 NDHS and the 2013 NDHS.

Table 1. Selected statistics on young child and maternal nutritional status

Variable	Nigeria	Northwest and Northeast	Other zones of Nigeria	Kebbi state	Bauchi state
Stunting (HAZ<-2.0) prevalence in under-fives, %					
NDHS 2013	36.8	50.8	22.3	60.6	50.8
NNHS 2015	32.9	50.7	21.8	58.3	54.2
Change 2008 to 2013 (NDHS), percentage points	-3.8	-0.5	-10.4	-2.9	-0.2
Wasting (WHZ<-2.0) prevalence in under-fives, %					
NDHS 2013	18.0	24.7	11.1	18.1	23.3
NNHS 2015 (NB: 6 to 59 month age group)	7.2	9.9	5.2	8.5	9.3
Infant (under one year of age) mortality, per 1,000 live births for the ten years preceding the survey	69	NE: 77 NW: 89	NC: 66 SE: 82 SS: 58 SW: 61	<i>n/a</i>	<i>n/a</i>
Change 2008 to 2013, rate	-6	NE: -32 NW: -2	NC: -11 SE: -13 SS: -26 SW: +2	<i>n/a</i>	<i>n/a</i>

Variable	Nigeria	Northwest and Northeast	Other zones of Nigeria	Kebbi state	Bauchi state
Under-five mortality, per 1,000 live births for the ten years preceding the survey	128	NE: 160 NW: 185	NC: 100 SE: 131 SS: 91 SW: 90	<i>n/a</i>	<i>n/a</i>
Change 2008 to 2013, rate	-29	NE: -62 NW: -32	NC: -35 SE: -22 SS: -47 SW: +1	<i>n/a</i>	<i>n/a</i>
Thin women age 15 to 49 years (BMI<18.5), % *	11.4	16.0	8.0	11.1	23.1
Change 2008 to 2013, percentage points	-0.8	-3.3	-0.4	-5.5	-2.3
Infants judged to be “very small” or “smaller than average” at birth, %	14.9	18.7	10.9	35.6	21.6
Overweight or obese women age 15 to 49 years (BMI≥25.0), % *	24.7	16.6	30.8	14.3	13.4

Sources: NDHS 2008, NDHS 2013, NNHS 2015

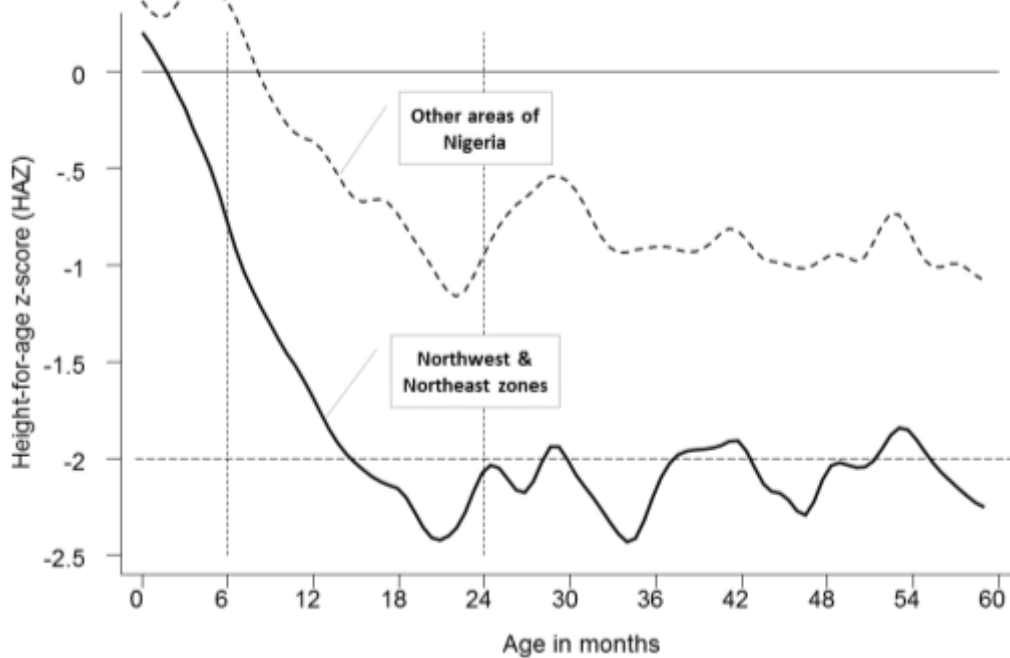
Note: Aggregate estimates for ‘Northwest and Northeast’ and ‘Other zones of Nigeria’ were computed by using sample size weighted averages of the point estimates for the six geopolitical zones of the country in the respective survey reports.

NE=Northeast geopolitical zone; NW=Northwest; NC=North Central; SE=Southeast; SS=South South; SW=Southwest.

* The Body Mass Index (BMI) is a measure of an individual’s thinness and is most commonly used with adults. It is the ratio of the weight (in kilograms) of the individual to the square of her or his height (in meters). Individuals with a BMI less than 18.5 kg/m² are considered thin or underweight, while those with a BMI greater than 25.0 kg/m² are considered overweight and greater than 30.0, obese.

The under-five stunting results in Table 1 show prevalence rates in northern Nigeria being more than twice those in the rest of the country. Stunting estimates from the 2015 National Nutrition and Health Survey are reasonably consistent with estimates from the 2013 NDHS. Trends in the prevalence of stunted young children between 2008 and 2013 show that northern Nigeria has not made any progress over this period. The lowering of stunting levels by almost 4 percentage points in the country as a whole over this period is solely due to progress in the rest of the country, where a 10-percentage point drop is estimated.

Figure 3. Mean height-for-age z-score (HAZ) by month of age for Nigerian children from birth to 5 years of age, 2013-- Northwest and Northeast zones; rest of the country



Source: Authors' analysis of NDHS 2013

In terms of the development of chronic undernutrition after birth, Figure 3 compares the mean HAZ for children up to five years of age in northern Nigeria and those in other areas of Nigeria by age in months using data from the NDHS 2013. The graph plots show that the nutritional status of newborns in northern Nigeria, on average, begins to decline immediately from birth, while in other areas of Nigeria, this decline is delayed several months. This pattern of decline a few months after birth in other areas of Nigeria is a pattern commonly seen in most populations in developing countries, and generally reflects the challenges associated with safely introducing complementary foods into the diet of the young child (Dewey and Huffman 2009; Onofiok and Nnanyelugo 1998).

What is notable here is the immediate decline from birth in the average nutritional status in terms of linear growth with age of infants in northern Nigeria, indicating that many infants in northern Nigeria will have suffered from undernutrition in the womb due to their mothers being undernourished. But this undernutrition is then compounded by poor nutritional care or health challenges after birth, so no improvement in average nutritional status results is seen for infants in northern Nigeria in the months after birth, unlike in other areas of Nigeria. This decline in mean HAZ scores by month of age continues rapidly until the children are about 20 months of age, a pattern of decline in mean HAZ scores seen for both children in northern Nigeria and in other areas of Nigeria. However, for children in northern Nigeria, by 15 months of age their mean HAZ score falls below -2.0, the clinical definition of a child being stunted in their growth. Over the next 45 months as the children age, only occasionally does the mean HAZ score for those in northern Nigeria rise above -2.0. The implication of this is that at least one out of two children aged 15 to 59 months in northern Nigeria are stunted in their growth. For children in other areas of Nigeria, while significant stunting in growth occurs, mean HAZ scores are closer to -1.0 as the children age after 15 months, suggesting that either stunting is not

as widespread across children in this age group or is generally not as severe as is the case for under-fives in northern Nigeria.

Children with weight-for-height z-scores (WHZ) below -2.0 clinically are considered to be wasted, a key indicator of acute undernutrition in under-fives. The 2013 NDHS WHZ data, while not outside of the realm of possibility, appears to overestimate the prevalence of wasting in Nigerian children.^{3F4} Several experts we consulted suggested that the 2015 NNHS likely provides more accurate estimates of wasting in young children (Annex 1 interviews 1, 3, and 4). As shown in Table 1, nonetheless, estimates from either data set show that wasting prevalence levels in northern Nigeria are about double those in other parts of the country.

Undernutrition is implicated in many of the deaths of infant and young children in developing countries like Nigeria. Although improvements are being seen in infant and under-five mortality levels over time, particularly in the Northeast zone of Nigeria, northern Nigerian children at birth are still significantly more likely – on the order of 60 to 70 percent more likely – than children elsewhere in Nigeria to die before their fifth birthday.

With regards to the nutritional status of women of childbearing age, women in northern Nigeria are more likely to be thin than in other parts of the country. However, reductions in the prevalence of thin women between 2008 and 2013 were considerably higher in northern Nigeria than elsewhere. Further analysis will be required to determine what drove this positive change. A potential consequence of a mother being undernourished is that her children at birth will be somewhat smaller than is normal. The 2013 NDHS obtained from the mothers of young children a subjective assessment of the size of their newborn relative to other newborns. In northern Nigeria, a larger proportion of mothers considered their newborns to be smaller than normal than did mothers elsewhere in the country.

In terms of malnutrition, even if not undernutrition, overweight or obese women are not absent in northern Nigeria. One out of six women of childbearing age are overweight in northern Nigeria, a share that is about half of that of women elsewhere in Nigeria. At present, undernutrition is the principal nutrition challenge facing communities in northern Nigeria, rather than non-communicable diseases associated with obesity. Nonetheless, programs to address obesity in Nigeria must ensure that those in northern Nigeria affected should also be targeted and mechanisms established to prevent this problem of malnutrition from intensifying in the north.

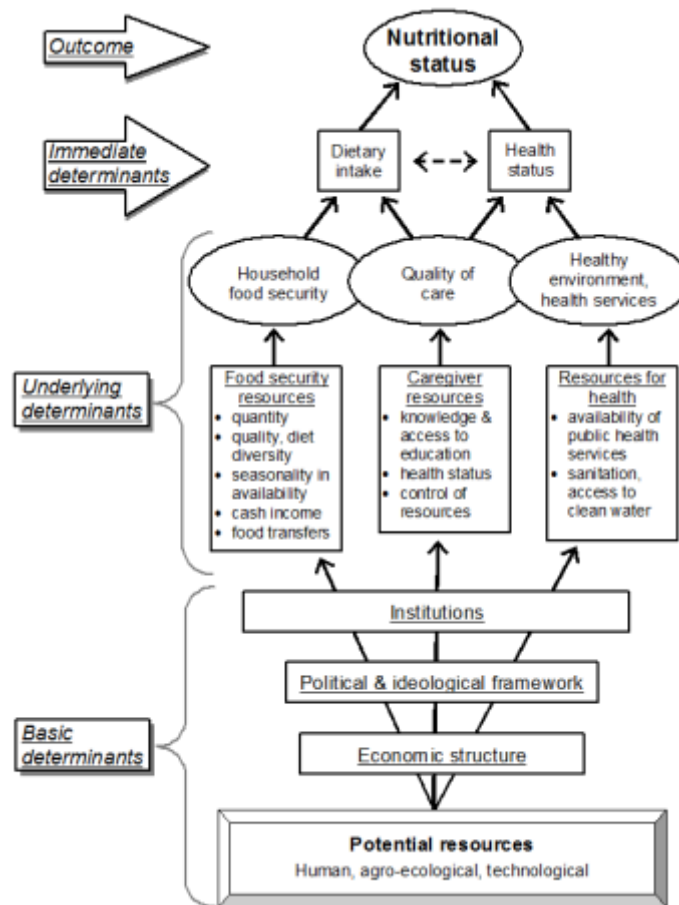
⁴ Wasting prevalence levels of 18.0 percent, the national 2013 NDHS estimate, generally would indicate a critical situation requiring an emergency response. Most experts with whom we spoke were skeptical of the 2013 NDHS wasting estimates, particularly highlighting extremely high prevalence numbers in Kano and Kaduna states that do not reflect other evidence on wasting levels in those states.

An assessment of the quality of anthropometric indicators in recent Demographic and Health Surveys globally, including the 2013 NDHS, noted that in countries with significant heterogeneity in nutritional status among sub-populations, as is the case in Nigeria, overestimation of nutritional indicators is more likely (Assaf, Kothari, and Pullum 2015). In such populations “... the level of heterogeneity in terms of factors that affect nutrition will tend to increase, with a tendency for the SDs [standard deviations] to increase. Measurement error will also tend to increase the SDs, leading to potential over-estimates of the prevalence of malnutrition (45).” However, the researchers do not specifically highlight the WHZ data from the 2013 NDHS as being invalid.

Conceptual framework of the determinants of nutritional status in young children

To identify which factors might be resulting in the high levels of undernutrition observed in northern Nigeria, we employed the UNICEF conceptual framework of the determinants of nutritional status in young children (Figure 4) to design the scoping study (UNICEF 1990).^{4F5} This framework has been applied and validated in conducting many nutritional analyses globally, as it provides an efficient, succinct, and useful way to understand what set of factors might potentially be driving the nutritional condition of young children in a society or community.^{5F6} It also is quite relevant to understanding the drivers of undernutrition in the mothers of young children and other women of childbearing age.

Figure 4. UNICEF conceptual framework of the determinants of young child nutritional status



Sources: Adapted from UNICEF 1990; Jonsson 1993.

The framework presents a generalized understanding of how proper nutrition or, conversely, malnutrition is the outcome of specific development problems related directly to the level of dietary intake and the health status of the young child, the immediate determinants of nutritional status. The quality of these immediate

⁵ This discussion draws upon Benson (2004).

⁶ The UNICEF framework has been reworked repeatedly to be more appropriate for guiding particular efforts to improve nutrition or to more explicitly highlight specific elements of the framework. More recent adaptations of the framework to guide global efforts to address malnutrition include those of Black et al. (2013) and the WHO conceptual framework presented in Stewart et al. (2013). The global USAID Multi-sectoral Nutrition Strategy, 2014-2025 draws explicitly upon the UNICEF conceptual framework (USAID 2014).

determinants, in turn, is determined by the underlying food security status of the household in which the child resides. Of equal importance to nutrition, however, is the availability of health services and a healthy environment and the quality of care the individual receives. A sustained healthy and active life is possible only when these underlying determinants of the nutritional status of household members are of a sufficiently beneficial character.

The degree to which these three underlying determinants are expressed, positively or negatively, is a question of resources – primarily those available in the household, but also in the community – and whether they are used effectively to address the nutritional needs of the young child. These resources include the availability of food, but extend much farther to include the physical and economic access that an individual or his or her caregiver has to that food, the caregiver’s knowledge of how to utilize available food and properly care for the individual, the caregiver’s own health status, and the control the caregiver has over resources within the household that might be used to nourish the individual. Finally, the level of access to information on and services for maintaining health; the availability of curative services; and the presence or absence of a healthy environment with clean water, adequate sanitation, and proper shelter all contribute to determining the nutritional status of an individual.

When the distribution of resources within communities and society as a whole is the central point of discussion in accounting for why some are malnourished and others are not, the framework moves from the realm of the individual and household to the political. The UNICEF framework links the availability of nutrition resources to a set of basic determinants, which are themselves a function of how society is organized in terms of economic structure, political and ideological expectations, and the institutions through which activities within society are regulated, social values are met, and potential resources are converted into actual resources. These include political, administrative, and religious institutions through which a society’s values are identified, its development vision defined, and that vision achieved. Consequently, achieving good nutritional status for all is identified in the framework as a subject for political debate and an issue of immediate concern to any national development strategy.

Three additional points should be highlighted. First, in making efforts to prevent malnutrition, the three underlying determinants make explicit that multiple sectors need to be involved in any comprehensive effort to reduce malnutrition. We see, for example, that agriculture is important for the quantity and quality of food available; education, so that the nutritional care provided is appropriate; health care, so people can effectively utilize available nutrients; and so on across multiple and most sectors. Any one sector operating alone without parallel efforts by other sectors will likely not succeed in significantly improving nutrition in young children and their mothers in a sustainable manner. Expertise to address the problem is not only located within the health sector. Chronic undernutrition is not simply a medical problem that is solely addressed in a technical and scientific manner, but a social policy problem of concern to multiple sectors.^{6F7}

Secondly, the UNICEF conceptual framework provides guidance on what might be the pathways through which different development initiatives may impact upon the nutritional status of individuals (Longhurst and Cornelius 2013).

⁷ For efficiency in undertaking cross-sectoral efforts to reduce chronic undernutrition, a coordinated approach is required. At central government level in many countries, this role is often played by a cross-sectoral coordination agency, such as the Office of The President, Vice-president, or Prime Minister, or in the case of Nigeria, the Ministry of Budget and National Planning.

Nutrition-specific interventions operate at the level of the immediate determinants of nutritional status, addressing dietary or health related issues, including infant and young child feeding (IYCF) practices or micronutrient supplementation, and generally will have specific nutritional objectives. Typically, nutrition-specific interventions have relatively short and well-understood impact pathways in terms of how they result in improved nutrition.

Nutrition-sensitive interventions operate at the level of the underlying determinants. These operate on nutrition in a more indirect manner, with longer impact pathways that may not always be very well understood, taking longer to achieve the desired nutrition outcomes (Alderman and Ruel 2013). Examples include agricultural programs with nutrition objectives; health system strengthening efforts, inserting nutrition more strongly into school curriculums, social protection programs; and water, sanitation, and hygiene projects, among others. Finally, more *basic* interventions operate at the level of the basic determinants of nutritional status. Such activities include efforts to sustainably and broadly improve household welfare and reduce poverty, good governance initiatives, programs to address gender disparities in society, and the like. For such efforts to succeed, they generally must operate on a long, even generational, time scale, and what must be done to achieve success is not always very well understood.

This sort of understanding is useful in determining how best to proceed following a close analysis of a particular nutrition problem within a particular context. The scope of the interventions called for will be determined to a large degree by the level of the key constraints preventing the achievement of good nutritional status for the undernourished in the context of interest.

Finally, although not explicit in the basic form of the UNICEF framework, designing actions to reduce undernutrition requires consideration of gender-defined roles in households and communities. A key question in this regard is, “Who does these nutrition-related tasks?” that result in a young child growing well or being undernourished. To a large degree, it is women who are directly involved in the processing and preparation of food and the care and feeding of young children within the household. Beyond breastfeeding, there really are few biological reasons for women alone to assume these roles and for men to shun them. If the gendered ordering of society leads to malnutrition and consequent suffering, then certainly there should be scope for change. Gender bias and discrimination constrain and limit women’s rights, choices, capabilities, and opportunities. Taken together, these constraints limit women’s abilities to improve their own nutritional status and that of their children. In a broad cross-country quantitative analysis, Smith et al. (2003) found that increases in the decision-making power of women relative to men was significantly associated with improved nutritional status in their children, concluding that sustainably improving nutritional status broadly requires proactive efforts to improve the status of women.

4. SITUATION ANALYSIS OF NUTRITIONAL STATUS OF YOUNG CHILDREN IN NORTHERN NIGERIA

Based on the UNICEF conceptual framework, this section of the paper provides an assessment of the underlying determinants of the nutrition status of young children – food security; water, sanitation, and access to public health services and medical facilities; and caring practices for the young child. This is done by combining qualitative information obtained from interviews, group discussions, and observations in Bauchi

and Kebbi states and from interviews in Abuja with quantitative data on dimensions of the underlying determinants of the nutritional status of young children in northern Nigeria drawn from representative survey data, particularly the 2013 NDHS. We then extend the discussion to consider a principal basic determinant of child nutritional status in northern Nigeria, that of the roles that women play in nurturing their young children and the resources that they can draw upon in doing so. These patterns are defined primarily at a societal level.

As ensuring that young children and their mothers obtain the most appropriate diets, services, and care necessary for them to be well-nourished, strengthening information flows on the components of good nutrition should be a central design element in any new programs to address undernutrition in northern Nigeria and elsewhere in the country. The last part of this chapter focuses specifically on how parents of young children, particularly first-time parents, obtain information on proper nutritional care for infants and young children.

Food security

Food security – “physical, social, and economic access to sufficient safe and nutritious food that meets dietary needs and food preferences for an active and healthy life (World Food Summit 1996)” – is the underlying determinant of nutritional status that is most closely linked to agriculture. Agriculture is the principal livelihood pursued by most households and is the dominant sector in the economy of northern Nigeria. Much of the arable land in northern Nigeria is planted to crops in the rainy season and provides grazing on crop residues to large numbers of livestock in the dry season. Except for the northernmost area along the border with the Republic of Niger, most of northern Nigeria is in the Sudanian agroecological zone, receiving relatively reliable rainfall of more than 600 mm during the rainy season. In consequence, farm households in northern Nigeria are subject to drought-induced shocks to food production to a much lesser degree than are households further north in the considerably more arid Republic of Niger. The principal rain-fed staples produced are cereals – sorghum, pearl millet, and maize – all of which grow and store well.

Of equal significance from the standpoint of food security in northern Nigeria are the extensive areas of irrigable *fadama* land – land on the extensive floodplains of the Sokoto-Rima and Hadejia-Yobe river basins which have relatively high water tables. Irrigated rice, maize, tomatoes, onions, green leafy vegetables, sugar cane, fruit, and other crops are produced in the *fadama* farming systems of the region. An indication of the historical significance of *fadama* production to the economic productivity and food security of northern Nigeria is that the *fadama* areas around Kano have the highest rural population densities of those areas of Africa that receive only a single season of rainfall annually (Mortimore 1989). Households farming *fadama* lands generally can engage in crop production year-round.

But, access to *fadama* is not universal, and likely only a relatively small minority of households have such access despite the prominence of *fadama* areas in the rural landscape of northern Nigeria.^{7F}⁸ Those without access to *fadama* face greater challenges in accessing food in the dry season. Commonly, farmers who only engage in rain-fed dryland farming will engage in other non-agricultural livelihoods during the dry season, including trading or seasonal migration to urban centers in northern Nigeria or to southern Nigeria to engage in wage

⁸ No published estimates of the proportion of rural households in northern Nigeria with access to *fadama* land could be found, this despite major public investments exceeding USD 500 million in the *fadama* areas over the past 15 years. The GHSP 2010/11 report estimates that 6.2 percent of all agricultural plots in the Northwest zone are irrigated, and 1.5 percent in the Northeast zone (NBS 2013a).

labor (Annex 1 interviews 14, 34, 36, 39). Moreover, in non-*fadama* areas there is little opportunity or tradition of producing fruits or vegetables, making it more difficult to consume diverse diets in such areas.

Given the extensive agricultural resources and the seemingly effective use to which those resources are put, general perceptions are that northern Nigeria is relatively food secure in terms of food availability. In the interviews conducted for the study, several respondents made the point that the nutrition challenges of northern Nigeria were not due to unproductive food systems (Annex 1 interviews 5, 6, 11, 14, 28, 33, 34). The area is well-endowed to produce food and, seemingly, sufficient food is produced. At aggregate level, food is available – *physical access* to food is not a constraint. In expanding on these statements, those who made them often would highlight that the quality of diets is where the problem lies and not in the availability of food (Annex 1 interviews 1, 5, 6, 14, 25, 26, 37, 67). Moreover, several respondents suggested that poor diets resulted from lack of knowledge – parents simply do not know how to use the foods that are available to provide a diverse, micronutrient-rich diet for their children.

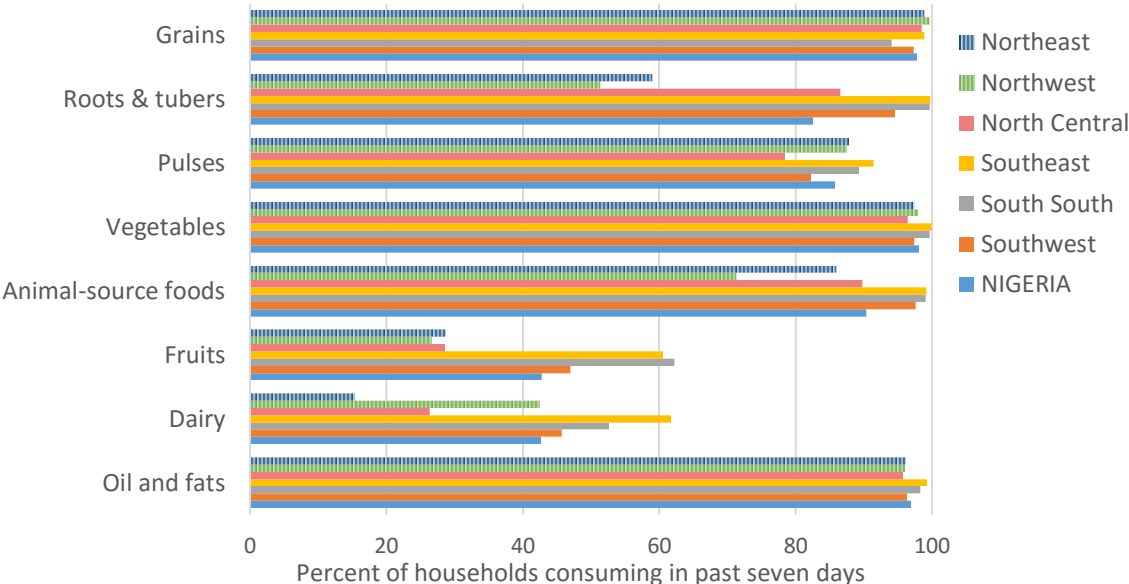
However, when discussing the causes of child undernutrition with local health and agriculture staff and with residents of communities in Bauchi and Kebbi, poverty was frequently mentioned as a more central factor contributing to stunting in young children (Annex 1 interviews 15, 25, 27, 35, 36, 40, 43, 45, 46, 55, 58, 51, 66). When the analysis of food security is brought down to the level of the individual and household, then considerations of *economic access* to food come to the forefront. Based on 2010 data, the USD 1.00 a day poverty headcount for Northwest and Northeast zones was estimated at around 70 percent for both, while in other zones the prevalence of poverty was between 50 and 60 percent (NBS 2012). Many households in northern Nigeria, particularly for rural households farming drylands at the time of year when their food stocks are diminishing, will have insufficient financial resources to be able to access the food that they require to provide sufficient calories and necessary nutrients to growing children and women of childbearing age in those households. In this regard, in a study in Kwara state Babatunde and Qaim (2010) demonstrated that off-farm income makes significant positive contributions to household calorie and micronutrient supply, dietary quality, and child anthropometry, attributing this to the increased economic access to food the off-farm income enables, either through the market or by providing capital for more intensive or diverse cropping under subsistence production. The economic access dimension of food security – whether through own-production or using income from cash cropping or non-farm sources to obtain food in the market – is a key consideration in any nutritional analysis of northern Nigeria.

However, these assertions of possibly significant food insecurity for northern Nigerian individuals and households due to insufficient access to food or whether, in contrast, any nutritional problems linked to food are due primarily to the poor quality of diets consumed cannot be confirmed using representative data sets of broad scope. Of the three underlying determinants of child nutritional status, objective information on food security in Nigeria is the sparsest. The 2001-2003 Nigeria Food Consumption and Nutrition Survey is the last survey that collected information on individual food consumption in Nigeria at a scale wider than local-level. It was conducted in 12 states, not nationwide, with a sample of 6,480 households (Maziya-Dixon et al. 2003).

The NDHS series collects information on the food consumption of the youngest child in survey households aged 6 to 23 months, information which cannot be used to assess dietary quality or food security more broadly. The NNHS series collects no dietary information.

The three rounds of the LSMS-Integrated Surveys on Agriculture – General Household Survey Panel (GHSP) (2010-11, 2012-13, and 2015-16) collected information on the quantity and value of food items consumed by the survey sample household over the seven days prior to the interview, as well as on food shortages experienced in the past year (NBS 2013a; 2014; 2016). While the GHSP also collects anthropometric data on young children in the surveyed households, however, the lack of individually disaggregated food consumption information in the survey series makes it difficult to do any precise diet-related nutritional assessments using the data sets.

Figure 5. Households reporting consumption of any food from food group in previous seven days, post-harvest period 2015/16, by geopolitical zone



Source: GHSP 2015/16

Moreover, little, if any analysis, has been done on the information on the quantity of food consumed or on seasonality in dietary patterns. The GHSP survey reports only present information on diets of households by food group. Figure 5 and Table 2 show the sort of information that can be drawn from these reports. Some information on differences in the quality of diets between zones is indicated – in addition to not consuming roots and tubers to the degree seen in other areas, households in northern Nigeria do not eat as much fruit or dairy products, both of which are important sources of micronutrients. We also see in Table 2 that households in other zones of Nigeria have somewhat more diverse diets than those in the Northwest and Northeast zones. However, households in some of the southern zones are more likely than those in northern Nigeria to have experienced a period of food shortage in the past twelve months. This limited information is about all that one can draw on dietary patterns from GHSP reports to date.

Table 2. Mean household dietary diversity scores and households reporting food shortage in past 12 months, by zone

	North-east	North-west	North Central	South-east	South South	South-west	NIGERIA
Household dietary diversity score, mean	7.4	7.3	7.7	8.9	9.3	8.5	8.2
Households experiencing food shortage, %	20.3	15.0	10.2	34.3	16.6	22.0	19.6
The two months with highest level of food shortage reported	Aug., Jan.	Feb., Jan.	Jul., Aug.	Jan., Feb.	Jan., Feb.	Jan., Feb.	Jan., Feb.

Source: Computation by authors from GHSP 2015/16

Note: The household dietary diversity score is computed based on number of food groups from which food was consumed over the past week from among 12 food groups.

Considerable investments are needed to improve the information base on food consumption across Nigeria, particularly at the level of the individual. Without comprehensive information on individual food consumption patterns, the significance for young child and maternal nutritional status of food security, dietary make-up, and seasonality in access to food is difficult to gauge in both northern Nigeria and elsewhere in the country.

Water, sanitation, and access to public health services and medical facilities

Turning to the second of the three underlying determinant of child nutritional status in the UNICEF framework, selected statistics on the access that northern Nigerian households have to safe water, sanitation facilities, and health services and the level of use made of services provided through local health facilities are presented in Table 3. Households in other areas of Nigeria have somewhat better access to water from protected sources than do households in northern Nigeria. Households in Kebbi state have notably low levels of access to safe water. In contrast, on average households in northern Nigeria are better served with toilet facilities in their homesteads, although nationwide only three out of ten households have toilet facilities. Moreover, there is considerable variation – note that toilet facilities are rare in Bauchi state. Hand washing facilities within the home are similarly not as common as might be expected across Nigeria, although households from other areas of Nigeria do better on this measure than those in the north.

With regards to availability of medical facilities per unit of population, based on data from 2011, the Northwest and Northeast zones are found to lag somewhat behind the rest of Nigeria. Given the lower population density of northern Nigeria relative to the southern zones, physical access to medical facilities in rural areas of northern Nigeria are likely significantly worse than elsewhere in the country.

However, use of the services provided by medical facilities is considerably lower in northern Nigeria than elsewhere in the country. Although attendance is increasing over time, in 2013 less than half of pregnant women in northern Nigeria attended an antenatal clinic session compared to 80 percent elsewhere in the country. Young children have even less contact with medical facilities – only 15 percent of births occurred at medical clinics in northern Nigeria compared to two-thirds of all births elsewhere. Immunization rates for children are especially low in northern Nigeria, particularly so in both Kebbi and Bauchi states, increasing the risk of illness being an immediate factor in causing acute undernutrition in young children.

Table 3. Selected statistics related to water, sanitation, and access to public health services and medical facilities

Variable	Nigeria	Northwest and Northeast	Other zones of Nigeria	Kebbi state	Bauchi state
Water comes from protected source, % households	60.6	55.3	63.6	21.9	37.4
Households with toilet facility, %.	30.1	39.6	23.9	52.3	15.0
Households with place for washing hands, %	39.5	38.7	47.1	19.8	17.3
Medical facilities per 100,000 persons, 2011*	20.6	17.5	22.6	10.8	18.6
Antenatal clinic attendance, % of pregnant women	60.6	43.6	79.7	24.3	55.8
Change 2008 to 2013, percentage points	2.9	8.5	2.7	12.0	10.9
Births outside medical facility, % of births	63.1	84.9	36.9	91.0	82.0
Children age 12 to 23 months who are up to date on immunizations, %	25.3	11.1	41.3	2.8	6.1
Children who received deworming medication in last 6 months, % aged 6 to 59 months	19.9	10.0	31.5	1.4	13.2
Children aged under 5 years who slept under a bed net of any sort during night before the survey, %	18.2	15.3	21.5	24.7	6.9

Sources: NDHS 2008, NDHS 2013, *NBS 2013b.

Note: Aggregate estimates for ‘Northwest and Northeast’ and ‘Other zones of Nigeria’ were computed by using sample size weighted averages of the point estimates for the six geopolitical zones of the country in the respective survey reports.

In interviews with experts in the region during fieldwork, several factors were noted as accounting for the low use of medical services by young children and women in northern Nigeria. The low quality of the services provided at local health clinics was repeatedly mentioned in fieldwork in Bauchi and Kebbi state (Annex 1 interviews 9, 33, 49). Clinics are often understaffed due to funding constraints so do not have staff with the needed specialized training to offer the medical or public health services required (Annex 1 interviews 26, 54). Civil service restrictions exacerbate this. For example, it was noted that the Bauchi state College of Health Technologies at Ningi three years ago instituted a two-year Diploma course for Nutrition Assistants who would work in community and LGA-level health facilities, but that none of the graduates of this program have yet been employed due to a hiring freeze (Annex 1 interview 52).

The dominance of males in the staff of medical clinics poses a cultural barrier to increased use by women of medical and public health services offered by the facilities, given the sharp social restrictions on interactions of women with men from outside of their household. Although no sex-disaggregated information was obtained on the staffing of medical facilities in northern Nigeria, at the several facilities visited during fieldwork, female staff were primarily found at facilities with maternities – perhaps 20 percent of the staff at all facilities visited were women. It is difficult to see how male staff could effectively conduct nutrition and maternal health public health activities in the social context of northern Nigeria, and most clinical officers stated this explicitly (Annex 1 interviews 15, 27, 51). Having men provide first-time mothers with guidance on proper breastfeeding, for example, is awkward, at best, and likely ineffectual. For the moment, female nutrition and health volunteers within the community who make home visits to women in their home compounds are an important component of efforts to deliver public health services (Qureshi et al. 2011). While it is to be expected that the sex ratio among medical personnel will become more balanced with continuing improvements in girl education in northern Nigeria, significant improvement in this regard can only be expected over a long period.

Finally, at an ideological level, in many communities there is suspicion of modern science-based medical practices and the intent of those promoting their use, particularly when those promoters are outsiders to the communities in question. Both the challenges in recent years of eradicating polio in northern Nigeria and the rise of the Boko Haram insurgency based in part on a strong political narrative rejecting Western education systems as false and sacrilegious more prominently reflect this mistrust of modern science. Considerable efforts are being made, particularly by government's Primary Health Care Development Agency (PHCDA), operating at state and local government levels together with partners, to mobilize traditional and religious leaders in communities across northern Nigeria to counter such ideas (Annex 1 interviews 26, 32, 33, 34, 35, 49, 50, 51, 52, 66). Nonetheless, public health services in many communities have been socially devalued and are shunned, resulting in fewer young children and their mothers obtaining many of the critical health and medical services that they require to maintain their health and nutritional status than would otherwise be the case (Annex 1 interviews 26, 38, 49, 51).

Caring practices

Most analyses of the nutritional challenges facing young children in northern Nigeria which utilize the UNICEF conceptual framework assert that poor caring practices are a dominant underlying determinant accounting for the high levels of chronic undernutrition observed. This report echoes these analyses, while recognizing that the problematic nutritional care in northern Nigeria is to a large degree an outcome of the interactions of several basic determinants, including the relative disempowerment of women in performing their nutritional care roles and in how information is disseminated to them. These basic determinant factors are examined in more detail later in this report.

Here recent statistics that indicate the quality of care that young children are receiving in northern Nigeria are presented and discussed (Table 4). These include aspects of infant and young child feeding (IYCF), particularly breastfeeding, as well as the educational level attained by the parents of young children and the degree to which those parents listen to the radio.

It is not surprising to find that breastfeeding is very common across Nigeria. We see that women in northern Nigeria are more likely to breastfeed their children to an older age than mothers elsewhere in Nigeria.

However, the challenge for promoting best IYCF practices is that it is relatively rare to find children through six months of age being breastfed exclusively, a globally recommended infant feeding practice (WHO 2013). In this regard, there is little difference between northern Nigeria and elsewhere in the country – nationally only one out of six infants are exclusively breastfed through six months of age. Infants across Nigeria are introduced to other liquids in the first days or even hours after birth and solid foods are introduced to their diets much earlier than at six months of age (Matthew et al. 2009). There is a strong belief that women are unable to provide sufficient breastmilk to meet the nutritional needs and, perhaps a more salient reason, the hydration needs of their infants.^{8F⁹} The annual average daily maximum temperature in northern Nigeria is between 31 and 36°C (88 to 97°F), with the average daily maximum temperature for April and May increasing to between 37 and 41°C (99 to 106°F). Given the hot climate, there is a strong tradition in northern Nigeria

⁹ An senior officer in the health system in Bauchi state stated that nutrition messages provided under the IYCF program in the state now have moved away from those emphasizing exclusive breastfeeding. This is because, despite many years of efforts at promoting the practice, less than a 10 percent exclusive breastfeeding rate has been achieved, according to the informant (Annex 1 interview 52).

of providing infants with additional liquids to ensure that they are sufficiently hydrated. However, breastmilk has repeatedly been shown to be sufficiently hydrating and there is considerable risk that the liquids provided may be contaminated, resulting in the infant experiencing diarrhea (Almroth and Bidinger 1990; Popkin et al. 1990; Sachdev et al. 1991; Smith and Becker 2016).

Table 4. Selected statistics related to nutritional caring practices provided to young children

Variable	Nigeria	Northwest and Northeast	Other zones of Nigeria	Kebbi state	Bauchi state
Lastborn child ever breastfed, % of mothers	97.9	98.2	97.5	97.9	97.5
Exclusive breastfeeding to six months of age, % of young children	17.4	–	–	–	–
Change 2008 to 2013, percentage points	4.3	–	–	–	–
Median duration of <u>any</u> breastfeeding among children born in past 3 years, months	18.3 (mean:18.2)	NE: 20.1; NW: 21.0	NC: 18.2; SE: 14.1; SS: 14.5; SW: 16.1	–	–
Median duration of <u>exclusive</u> breastfeeding among children born in past 3 years, months	0.5 (mean:1.8)	NE: 0.5; NW: 0.4	NC: 0.5; SE: 0.6; SS: 0.6; SW: 0.9	–	–
Median duration of <u>predominant</u> breastfeeding among children born in past 3 years, months *	4.4 (mean: 5.8)	NE: 5.1; NW: 5.0	NC: 3.4; SE: 3.0; SS: 2.6; SW: 4.7	–	–
Children 6 to 23 months of age who were fed foods from 4 or more food groups in previous 24 hrs., %	19.3	14.0	25.5	20.7	13.4
Child consumed foods rich in vitamin A in last 24 hours, % of lastborn children aged 6 to 23 mos.	51.6	47.0	57.0	50.7	61.9
Child consumed foods rich in iron in last 24 hours, % of lastborn children aged 6 to 23 mos.	34.7	23.2	48.1	37.8	18.7
Mothers of young children – educational attainment					
Median years of schooling completed	5.6	0.0	9.2	0.0	0.0
No schooling, percent	37.9	67.7	14.7	81.1	72.8
Completed primary school, percent **	56.9	28.1	81.0	15.9	22.1
Completed secondary school, percent	27.4	11.0	41.1	5.4	7.3
Fathers of young children – educational attainment					
Median years of schooling completed	9.1	5.0	10.9	0.0	1.3
No schooling, percent	21.3	40.9	5.5	55.5	47.9
Completed primary school, percent **	74.3	54.5	90.2	41.1	41.8
Completed secondary school, percent	41.7	27.9	52.8	22.3	19.1
Literacy					
Women aged 15 to 49 yrs., %	53.1	26.6	75.0	13.2	20.1
Men aged 15 to 49 yrs., %	75.2	51.8	88.7	40.3	50.0
Radio listening at least once a week					
Women aged 15 to 49 yrs., %	39.4	28.4	50.5	23.7	30.6
Men aged 15 to 49 yrs., %	54.7	35.2	70.2	7.1	33.9

Sources: NDHS 2008; NDHS 2013.

Note: * “Predominant breastfeeding” is when child is either exclusively breastfed or receives breast milk and plain water or non-milk liquids only.

** Individuals in the “Completed secondary school” category also are in the “Completed primary school” category.

Those who are not found in either the “No schooling” or “Completed primary school” categories are those who attended some, but did not complete, primary school.

Aggregate estimates for ‘Northwest and Northeast’ and ‘Other zones of Nigeria’ were computed by using sample size weighted averages of the point estimates for the six geopolitical zones of the country in the respective survey reports. NE=Northeast geopolitical zone; NW=Northwest; NC=North Central; SE=Southeast; SS=South South; SW=Southwest.

The introduction of solid foods to the infant generally occurs well before six months of age, although, with a median age for introduction of solid foods at around 5 months, infants in northern Nigeria receive solid food for the first time somewhat later than do infants elsewhere in the country. The NDHS 2013 provides information on the quality of the complementary foods provided the child during the weaning process. While nowhere in Nigeria are many young children provided diverse diets containing four or more food groups, the proportion of those who do so in other areas of Nigeria, at about 26 percent, is twice that seen in the north. A similar distinction is seen with the consumption by young children of food rich in iron. The differences are not so strong with the consumption of vitamin A rich foods, although northern Nigerian children are less likely to do so. Overall, choices in weaning foods are problematic, with a thin cereal based gruel, termed *pap*, being the most common complementary food given. However, *pap* usually is not very dense in its nutrient content, particularly for protein and fats (Onofioke and Nnanyelugo 1998). Moreover, complementary foods may not be provided the growing child sufficiently frequently to enable sufficient growth progress.

The education that the parents of a young child received has been found globally to be a significant determinant of the nutritional status of a child. The young children of educated parents, particularly parents educated to secondary level (Alderman and Headey 2014), tend to be well nourished. In contrast, the ability to absorb and utilize information on how to provide good nutritional care to young children is significantly constrained in undereducated parents. The educational experience and literacy rates for women of childbearing age in northern Nigeria remain extremely low – two-thirds of these women did not receive any schooling and only slightly more than a quarter claim to be able to read and write. These statistics stand in sharp contrast to women in other areas of Nigeria, most of whom completed primary school and are literate. The educational patterns for fathers of young children in northern Nigeria is not quite as dire as for the women, but is still very low. Almost half have not received any education, less than a third completed secondary school, and only half of fathers of young children in the north can read and write.

Basic determinants of nutritional status

As was noted in the discussion of the UNICEF conceptual framework, most programs that seek to bring about improved nutritional outcomes either engage in nutrition-specific activities, when the target of such programs are changing the nature of the immediate determinants causing a problem of malnutrition, or in nutrition-sensitive activities, when the focus of program efforts are the underlying determinants of nutritional status – food security; nutritional caring practices; or water, sanitation, public health and medical services. Generally, the basic determinants of nutritional status are not addressed in nutrition programs. These determinants often are part of the cultural and institutional foundation of societies and economies and how they operate. Basic determinants will not change very quickly or in a very certain manner in response to efforts to change them. In undertaking any analysis of a nutrition problem, the basic determinants tend to be treated as part of the context within which those adverse nutritional outcomes are generated. Consequently, while most nutrition programs recognize the need in the long term for changing some of the basic determinants to lay the groundwork for sustainably improve child and maternal nutrition, few programs will have specific activities directed at those basic determinants.

Nonetheless, the gendered structure of communities and households in northern Nigeria is a basic determinant of the poor nutritional outcomes seen in young children and in mothers of childbearing age there. Any actions to address child undernutrition in the Northwest and Northeast geopolitical zones of Nigeria should be done in a manner that takes explicit account of the significant adverse effects that the disempowerment and devaluation of women within these communities has on their own and their children's nutritional well-being. An important driver of the high levels of chronic undernutrition in northern Nigeria is due to women not being able to command sufficient resources or to access sufficient knowledge so that both they and their children benefit from adequate nutritional resources and informed care to live healthy and well-nourished lives (Hansford 2015. Also, see repeated references on women's empowerment and nutrition in the Agricultural Sector Food Security and Nutrition Strategy (FMARD 2017)).^{9F¹⁰}

¹⁰ For a comprehensive assessment of the impact of women's disempowerment in northern Nigeria on a related health issue, maternal morbidity and mortality, see Wall (1998).

Table 5. Selected statistics related to women’s childbearing, asset ownership, decision making, employment, and marriage patterns

Variable	Nigeria	Northwest and Northeast	Other zones of Nigeria	Kebbi state	Bauchi state	
Median age at first marriage among women age 25-49, yrs.	18.1	NE: 16.3; NW: 15.3	NC: 18.9; SE: 22.7; SS: 21.5; SW: 21.8	15.5	15.0	
Teenage pregnancy, women age 15 to 19 years who have had a live birth, percent	17.1	26.0	9.4	26.4	37.8	
Mean number of children ever born to women age 40 to 49 years	6.3	NE: 7.1; NW: 7.6	NC: 5.8; SE: 5.7; SS: 5.4; SW: 4.8	6.7	8.1	
Mean ideal number of children desired, all women age 15 to 49 years	6.5	8.3	5.1	8.8	9.0	
Own a house	Women 15-49 yrs., %	3.8	1.9	5.3	6.4	1.3
	Men 15-49 yrs., %	25.6	35.5	17.7	28.5	34.3
Own land	Women 15-49 yrs., %	4.7	3.9	5.3	6.3	2.9
	Men 15-49 yrs., %	26.5	31.1	22.8	16.4	38.1
Currently married women age 15-49 yrs. who usually make specific decisions either by themselves or jointly on:						
	Their own health care, %	38.7	19.4	60.4	2.7	29.0
	Making major household purchases, %	37.6	16.4	61.4	5.0	12.9
	Visits to her family or relatives, %	47.4	27.7	69.4	8.0	40.1
	None of the three decisions, %	48.1	69.4	24.2	90.9	56.0
Not employed in previous 12 months						
	Women 15-49 yrs., %	36.5	44.4	30.0	37.1	43.6
	Men 15-49 yrs., %	19.9	18.4	21.2	16.8	2.8
Currently married women aged 15-49 yrs. with <u>no</u> co-wives (not in polygynous household), %	66.8	57.0	77.9	55.7	48.9	
Currently married men aged 15-49 yrs. with 2 or more wives, %	16.8	24.0	10.1	22.9	28.4	

Source: NDHS 2013

Note: Aggregate estimates for ‘Northwest and Northeast’ and ‘Other zones of Nigeria’ were computed by using sample size weighted averages of the point estimates for the six geopolitical zones of the country in the respective survey reports. NE=Northeast geopolitical zone; NW=Northwest; NC=North Central; SE=Southeast; SS=South South; SW=Southwest.

Statistics from the NDHS 2013 contrasting the experience of women in northern Nigeria with those in other areas of the country are shown in Table 5. Women in the north are much more likely to have given birth in their teens and to have borne more children during the childbearing years. However, the high fertility levels are socially determined – women in northern Nigeria also desire to give birth to significantly more children over their childbearing years than do women elsewhere. Table 4 provided evidence of the very low level of education obtained by most women in northern Nigeria. Illiteracy is a significant barrier to these women gaining the knowledge they need to take action in ways that are for the nutritional benefit of their children and themselves.

In many societies in northern Nigeria, including among the dominant Hausa/Fulani, most women after marriage remain in seclusion in their households. Although many will engage in various household economic enterprises, most are not economically productive to any significant extent and their economic dependence upon their husbands is significant. The personal income of women pales in significance to that which the husband controls within the household. Decisions on what the household eats, what sort of nutritional and health care women and children can receive, and what sort of community activities a woman can participate in are made with and often primarily by the husband. 70 percent of women interviewed in northern Nigeria for the NDHS 2013 reported that they do not participate in decisions made by their husbands on their own health needs, major household purchases, or visiting her own family and relatives.

Based on the fieldwork for this study and various reports consulted, it appears that some slow progress is being made to more fully value women within communities in northern Nigeria. Education rates for girls are rising slowly, even if girls were reported generally to make up no more than one-quarter of the classes in secondary schools and the Colleges of Health Technologies in Bauchi and Kebbi states where government clinical and public health staff are trained (Annex 1 interviews 26, 54). Legislation is in place in both Kebbi and Bauchi states to prevent adolescent girls who are making good progress in their schooling from being married before they complete junior secondary school, the third year of secondary (Annex 1 interviews 21, 58). It appears to be broadly recognized that a medical and public health system with staff that are predominantly male will be a generally less effective system than one with a better distribution of all roles in the system between men and women (Annex 1 interviews 15, 51). But this progress is slow and continuing prodding of the process through dedicated programs and incentives to empower and promote women's roles in communities and societies and in local economies in northern Nigeria will be needed for decades to come if sustainable and deep reductions in undernutrition in young children and women of childbearing age are to be realized. Nonetheless, the recent small positive trends in girls' education in northern Nigeria, particularly as increasing numbers of girls are able to progress in their education into secondary school, should translate into their children receiving improved nutritional care when those girls become mothers.

A second basic determinant that is pertinent to addressing chronic undernutrition in northern Nigeria is that of how and to what objectives public resources are invested. These investments reflect how society organizes itself and uses its common or public resources to achieve the vision of development and personal and community well-being that its members value. Given the long-term benefits that improving the nutritional status of a society's children have for both the individual and for their households, communities, and the society as a whole, ensuring that all children are well nourished is a legitimate objective for society to pursue and to which to dedicate sufficient public resources.

Advocacy efforts to increase attention to improved young child nutrition as a development priority are ongoing at federal and state levels in Nigeria. However, as is evident by more than a third of all children nationally being stunted in their growth and over half in northern Nigeria, the level of public investment is much lower than the needs demand (ORIE 2014, 2015). State governors are the principal target of these advocacy efforts given the significant influence that they wield over how annual budgets at state level are allocated. Some successes have been achieved – Kebbi and Kaduna were both mentioned as states that have made some initial steps to prioritize nutrition (Annex 1 interviews 5, 11) – but generally most governors have not been very responsive.

Moreover, it should be noted that when public resources are allocated to address nutrition objectives by political leaders, those resources are generally focused on addressing acute undernutrition, rather than the prevention of such undernutrition. So, for example, much of the state resources going to nutrition activities in Kebbi state are dedicated to the Community-based Management of Acute Malnutrition (CMAM) program that is implemented by agencies under the Ministry of Health (MBEP-Kebbi and UNICEF-Sokoto 2017). In part this reflects the poor fit between addressing chronic undernutrition as a multi-dimensional and, as such, a multi-sectoral development activity requiring contributions of expertise and services from several sectors and agencies, and the way the public sector is organized with sectoral ministries and agencies essentially competing for funds. A cross-sectoral development problem, like addressing chronic undernutrition in young children, will fall through the cracks, as it is the priority of no single sector. In addition, the political visibility of efforts to address acute malnutrition is significantly higher than that of efforts to address chronic malnutrition, given the often emaciated condition of acutely malnourished children, while stunted children may look healthy even though they are much smaller than their well-nourished peers. Obtaining political support to allocate public funds to CMAM activities generally will be a much easier task given the higher visibility of the problem, than will be obtaining such support for IYCF or other community public health volunteer activities targeted at chronic undernutrition and the prevention of acute malnutrition, which visually are not so compelling and require a somewhat deeper understanding of nutrition issues and the associated heavy personal and societal costs of malnutrition to assess their importance as a public investment priority.^{10F}¹¹

Engaging with the political and administrative leaders of society to encourage them to treat nutrition as a development priority and to allocate the public resources required to do so, as with women's empowerment, is a long and daunting task, as is the nature of any efforts to change basic determinants of nutritional status. But, it needs to be done.

How parents obtain information on how to properly nourish and care for their young child

To bring together some of the earlier discussion on knowledge and its effective dissemination as a key component in improving the quality of nutritional care young children receive, this last section of this chapter explores how parents in northern Nigeria, particularly mothers, obtain information on how to properly nourish and care for their newborn child, particularly their first child. Several potential sources of such information are assessed, including formal education, media channels, community and religious organizations, outreach from community medical staff and facilities, and through household and family members.

Formal education

As the educational attainment of young women in northern Nigeria remains low, new first-time mothers are unlikely to have obtained much formal education on the proper care of young children. Moreover, the content of both primary and secondary school curriculums does not have much content on public health nutrition. Respondents in the fieldwork for this study noted that nutrition issues may be discussed in class in passing in higher primary years as part of a home economics or agriculture course (Annex 1 interviews 13, 25). There also is provision in the curriculum for a course on nutrition in the third year of secondary school. One respondent suggested that curriculum reforms to better address nutrition issues in primary and secondary schools could be a task that a USAID project, the Northern Education Initiative Plus (NEI+), might address

¹¹ CMAM clinics are not in every LGA in a state. However, we were informed that CMAM clinics are allocated to every senatorial district in a state, suggesting a strategy to obtain support for CMAM across the spectrum of political leaders.

(Annex 1 interview 52). Overall, given that most new mothers in northern Nigeria will not have spent much time in school, it is unlikely that formal training on nutrition issues will be a means to significantly improve the quality of nutritional care that they offer their young children. However, elsewhere in Nigeria where girls' educational attainment is significantly higher, curriculum reform to provide more comprehensive training on nutrition would be a potential valuable approach to increasing the information parents of young children have to prevent chronic undernutrition in their children.

Media channels

Among the media channels that mothers of young children in northern Nigeria might access, radio is the primary channel. Television is not of much value in reaching rural mothers. Newspapers are irrelevant. Posters have uncertain value for communication purposes given limited dissemination and the levels of illiteracy among mothers of young children.

Radio seems to be increasing in significance as a source of information for both mothers and fathers of young children in northern Nigeria, although more than half of household do not regularly listen to the radio and women have lower access to radio than men (Table 4). The value of radio for disseminating messages on addressing chronic nutrition was discussed during the fieldwork in Bauchi and Kebbi states. Uniformly respondents stated that the BBC Hausa service on shortwave is the most highly regarded radio source in the region, although mention was also made of other Hausa language international shortwave broadcasters, including those from the USA, Germany, and China (Annex 1 interviews 28, 49). In addition to the public health impact of nutrition messaging using these international Hausa language broadcaster, one respondent suggested that such messages would also have an advocacy effect on political leaders, drawing their attention to nutrition issues (Annex 1 interview 14).

Although viewed as not being quite as objective as the BBC Hausa service, for example, federal and state AM radio broadcasts were also highlighted as a potentially important resource for nutrition messaging. PHCDA's communication office prepares radio messages on public health topics, including nutrition, but it was noted that such messages are not aired as frequently as they might be. Several respondent's highlighted that they had heard messages on exclusive breastfeeding, in particular, on the radio (Annex 1 interviews 19, 41, 42). Finally, community-based radio stations (FM) were emphasized, particularly in Bauchi state, as being a useful resource for public health messaging (Annex 1 interviews 52, 65). However, concerns were expressed as to the quality of the messages that go out.

Overall, radio has received considerable attention for disseminating public health nutrition messages to the public. Given the high levels of illiteracy in northern Nigeria, radio seems the best medium for such messaging. However, as fewer than half of households listen to radios, this is not a perfect solution. With increasing penetration into households in northern Nigeria of cell phones, which now often come with radios, the prospects for radio for communicating messages on proper nutritional care remain promising and should be further exploited.

Community and religious organizations

Most projects in northern Nigeria that have nutrition objectives build many of their activities around women volunteers in the project communities who engage in house-to-house visits with mothers in their households, given the common practice of wife seclusion. In parallel, reflecting the dominant social and economic role of

husbands in their households, a smaller number of male volunteers, often called “volunteer supervisors”, engage with traditional community and religious leaders to mount programs of outreach to the fathers of young children and other men in the community (Annex 1 interviews 12, 33, 35, 48). The projects work with these leaders to ensure that they are familiar with the content of the projects and address any questions about or objections to the project that the leaders might have in order that the leaders will endorse the project activities in the community, both activities targeted at women and at men.

Of importance in this regard in the Muslim-dominated communities of northern Nigeria are local Islamic organizations. The chief imam of any village is viewed by most projects as an important gatekeeper and potential strong ally for public health nutrition outreach efforts in a community. Generally, no actions will be taken in a community without the endorsement of the chief imam (Annex 1 interviews 50, 51). It was observed that the nutrition and public health programs that PHCDA and UNICEF are implementing have specific training programs for the religious leadership of the LGAs and communities with which they work early in the projects (Annex 1 interview 21). This is done to lay the groundwork through social mobilization for later outreach efforts, including through providing young child nutrition messages in sermons at local mosques, particularly at weddings and child naming ceremonies. These efforts seem valuable and necessary in providing the parents and other caregivers of young children in these communities with the information they require to give good nutritional care.

Local chapters of the Federation of Muslim Women’s Organizations of Nigeria (FOMWAN) in both Kebbi and Bauchi states were repeatedly highlighted during the fieldwork as being important partners for any agencies engaged in nutrition and public health outreach into local communities and, in particular, with women in those communities (Annex 1 interviews 6, 25, 35, 49, 50, 52). Although FOMWAN leaders state that, first and foremost, it is a religious organization set up to support Muslim believers and to expand the faith, it has amongst its objective the social and human development of Muslim women (Annex 1 interview 35). There are FOMWAN chapters in most states, LGAs, and local communities. Consequently, over the years it has played an important part in the social mobilization efforts for public health activities in northern Nigeria. Many of the FOMWAN members who are active in public health activities are retired medical workers, so the organization has a reasonable technical capacity for such work. However, more importantly is the assistance it provides in bridging barriers of suspicion that may arise when outside public health nutrition programs are brought to predominantly Muslim communities.^{11F¹²}

While FOMWAN is the principal Muslim organization involved in nutrition work in northern Nigeria, several other Muslim organizations have played more local roles on public health nutrition, roles which could be expanded significantly (Oloyede 2014). These include Jama'atu Nasril Islam, an umbrella organization for Muslims in northern Nigeria, and Jama'atul Muslimeen, a Sokoto-based organization that promotes education and health. Jama'atu Nasril Islam has worked on some public health-oriented projects in the past, including the USAID-funded STEER project, which focused on orphans and vulnerable children and had some nutrition components (Annex 1 interviews 36, 67). As these other Muslim organizations have a broader mandate within the broader Muslim community of northern Nigeria than does FOMWAN, conceivably they could mount their own nutrition and public health outreach activities. There are certainly advantages to having Muslim organizations in northern Nigeria engage within Muslim communities there to significantly reduce

¹² In the south of Bauchi state, which has a significant Christian population, the Catholic women’s organization, Zumunta Mata, performs a similar function to FOMWAN for nutrition and public health programming in many communities.

chronic undernutrition in young children and women of childbearing age. Such organizations can build upon existing social relationships built around a shared religious faith to provide knowledge and to influence decisions on proper nutritional care likely more effectively than can organizations that are not so well integrated into the social fabric of these communities (Goldberg 2014).

Community medical staff

Health care providers globally are often an important source of knowledge for caregivers on the nutritional care of young children. Most nutrition projects in northern Nigeria involve staff of local clinics in their activities, particularly in antenatal and postnatal clinics, management of acute malnutrition, micronutrient supplementation, and in ICYF outreach efforts. It was highlighted earlier that the quality of services provided by these clinics is not as high as desired and often male health care workers are not able to effectively engage with women who come to the clinics. Consequently, attendance by mothers and young children at facility-based activities in many communities in northern Nigeria is discouragingly low. This is also seen in some of the statistics presented in Table 3.

Since many of the young children in a community are not seen at the clinics, there is a strong reliance on house-to-house community outreach to meet mothers of young children and to check on the nutritional well-being of those children in their homes. The community volunteer approach that PHCDA, UNICEF, CRS, and other agencies working on nutrition in northern Nigeria use is an important means to circumvent this barrier. The inclusion of volunteers adds another step to the flow of information from trained professionals to nutrition care givers, but it is necessary given the cultural context. However, it is important that the training of these volunteers be as sound as possible, with culturally appropriate and clear visual aids to assist them in teaching often illiterate mother in their house-to-house visits within communities.

Perez-Escamilla et al. (2016) assess the quality and retention of the training IYCF community volunteers received in an LGA in Kaduna state as part of the baseline evaluation of the Kaduna Community IYCF counselling package. This assessment highlighted that, while effective training is possible, the retention of key ICYF messages by volunteers is not as high as desired. Moreover, social norms, such as attitudes on women's roles within the household, can undercut the effectiveness of community volunteers in conveying effectively the IYCF messages to community women.

The findings from Kaduna state likely would apply to community volunteer-centered nutrition activities in Kebbi and Bauchi states. The quality of the training that volunteers receive is not always apparent and likely is quite variable, depending on the qualifications of the volunteers, their trainers, and the appropriateness of the training materials used. The quality of the training provided nutrition volunteers in nutrition project in northern Nigeria is a potential weakness for many such projects. Better training could be facilitated through review and strengthening of the training materials to ensure that they are appropriate for the nutritional challenges that need to be addressed and for the social and cultural context of communities in northern Nigeria.

Household and family members

Maternal grandmothers. In the fieldwork in Bauchi and Kebbi state, most interviewees reported on the manner in which first-time mothers were provided with knowledge on how she should care for the newborn child. At least in these two states, the maternal grandmother of the newborn plays a significant role in this

regard, at least at the birth of the first child (Annex 1 interviews 19, 21, 37, 40). In Kebbi state it was reported that commonly a first-time mother would leave her husband's compound in the last month of pregnancy to return to her parents' household, give birth there, and remain there for the first month or two of the child's life before returning to her husband. In Bauchi state, it was more commonly reported that the new mother would give birth to her first child at her husband's compound, but shortly after the birth the baby's maternal grandmother would come to spend 40 days with her daughter, assisting in the care of the infant.^{12F}¹³

As is common in many societies around the world, new mothers in Nigeria learn how to care for their newborns from their own mothers, who are likely the most important influence on the sorts of nutritional care and health care seeking behaviors that a mother adopts in providing care for the child. Traditional nutritional care practices are passed from generation to generation through the often close relationship of care and support from mother to daughter. Grandmothers are “guardians of tradition” in respect to nutritional care (Aubel, Toure, and Diagne 2004; Bezner-Kerr et al. 2008). Moreover, given how young many first time mothers are, “Adolescent and younger mothers have particularly weak influence over neonatal feeding decisions. ... mothers often agreed with older women's beliefs about neonatal feeding: they have respect for their elders and their knowledge of motherhood. (ORIE 2016a)”

However, it is important to recognize that the maternal grandmothers are not necessarily well educated on proper nutritional care – they learned themselves from their mothers and from raising a large number of children, by trial and error, even if mostly successfully, but not always, while they were still relatively young themselves – most will have given birth to their own first child while still in their teens. Given low educational attainment by women in northern Nigeria, they are unlikely to be literate. Consequently, it is likely that the traditional nutritional practices that are passed down from mother to daughter are not optimal. Evidence of this is the low rates of exclusive breastfeeding and the provision of other liquids than breastmilk to infants from the first days of life that are found in northern Nigeria. While one must recognize that many of the traditional nutritional care practices in northern Nigeria reflect centuries and generations of selection of best practices, these practices should be researched closely and subjected to rigorous validation to determine whether they contribute or hinder the attainment of good nutritional status for young children. Where traditional practices are shown to be potentially harmful, research should also be done to determine how most effectively to communicate this information so that behaviors change. If this is not done and maternal grandmothers continue to provide the wrong information to their daughters on how best to care for their young grandchildren, the deficiencies in the grandmother's knowledge on proper nutritional care will simply contribute to an ongoing intergenerational cycle of growth failure in successive generations.

Co-wives. Forty-three percent of women of childbearing age in northern Nigeria live in polygamous households. For the second to fourth wives, the older wife or wives could be an important source of knowledge on proper nutritional care for young children for a younger co-wife giving birth for the first time. The first wife, however, would be disadvantaged in this regard. In discussions on this during fieldwork, respondents acknowledged that this could be the case, but it would be dependent to some degree upon there being good interpersonal relationships between the co-wives (Annex 1 interviews 9, 38). In the quantitative analysis of the NDHS that was part of the overall study, inconclusive results were obtained for northern Nigeria in 2013 as to whether children born to women in polygynous households generally are somewhat

¹³ No respondents in the fieldwork for this study highlighted a significant role for the paternal grandmother in the nutritional care of infants.

more likely to be stunted. This is likely due to variable access both to information on good nutritional practices and to resources that can be dedicated to the nutritional care of the young child of a specific co-wife in such households. Nonetheless, co-wives could prove an important nutritional information source in certain contexts.

Fathers. Given the dominant role that husbands play in decision making and the use to which resources are put within most northern Nigerian households, most nutrition-directed programs are designed to engage with fathers of young children as much as possible. However, respondents in fieldwork provided a mixed assessment of the success of such efforts (Annex 1 interviews 13, 21, 28, 37, 40, 49, 52). While husbands may initially attend an antenatal clinic at the local health facility with their pregnant wives, repeat visits by those husbands are less common, given the awkward social context at such clinics (Annex 1 interview 27). The social norm of the seclusion of the woman within the household will conflict with the need for the woman to go out in public for clinic-based public health activities, often resulting in the woman staying in the household rather than availing herself of the public health services. Many observers felt that men have a very limited understanding of the need for using household resources to obtain from the market or elsewhere nutritious foods for their pregnant wife or for their young child when that child is being weaned. In consequence, there was a common thread in these interviews that men generally make poor use of the nutritional resources that are available to the household in meeting the needs of their wife or wives and young children (Annex 1 interviews 5, 36, 53).

However, although men in northern Nigeria are better educated than women, their average levels of education remain quite low. Consequently, it is prudent to continue to channel information on good nutritional practices to them using methods that are adapted and tailored for the context in which they are raising their children, including through community outreach and through radio and other media, if appropriate. Moreover, it has been highlighted that fathers in northern Nigerian communities will look for guidance on how best to address the nutritional needs of the children and women in their households from community and, especially, religious leaders. In assessing constraints to accessing nutrition services in the community, an ORIE (2014) study highlighted that fathers face several challenges:

“These include not wanting their wife to be seen by other men; general apprehension over services brought by foreigners; and perceptions that such interventions are not God’s plan. Many fathers emphasized the importance of support from religious and traditional leaders in influencing their acceptance of nutrition services. The Friday Mosque is perceived as a site at which men ... can be reached with advocacy messages.”

Guidance from opinion leaders within the community matters in determining whether fathers will feel confident in reliably providing the resources that women and young children in their households require to grow properly and to be healthy. This has implications for the community-level design of nutrition programming.

5. CURRENT NUTRITION ACTIVITIES AND RESEARCH IN NORTHERN NIGERIA

In conducting this scoping study, information was sought on all programs that were mentioned as being implemented or recently implemented in Kebbi and Bauchi states at a reasonably large scale with nutrition-specific activities, as well as on a few projects implemented elsewhere in northern Nigeria. While a complete list of such projects could not be developed within the timeframe for the study, Table 6 provides details on several.

Table 6. Current or recent development projects in Kebbi or Bauchi state or elsewhere in northern Nigeria with significant nutritional objectives, a partial list

Project	Partners	Where?	Activities
Feed the Future Nigeria Livelihoods Project (2013-2018)	<ul style="list-style-type: none"> • CRS • Selected local civil society organizations and non-governmental organizations • Government agencies at state and LGA levels <p>Funded by USAID/Nigeria</p>	Kebbi, Sokoto, FCT – 7 LGAs in total	<ul style="list-style-type: none"> • Multi-dimensional project centered on increasing participation of 42,000 very poor households in rural economic growth, primarily through agriculture • Nutrition dimension: <ul style="list-style-type: none"> ▪ Promote optimal nutrition and hygiene practices through a caseworker model in target communities <ul style="list-style-type: none"> – Caregiver groups in a community (20 female members in each group) work with a trained female project liaison through 21 simple nutrition and hygiene messages and receive guidance on producing (home gardens; small livestock), preserving, and using local foods for proper diets. Includes liaison engaging with the group members individually through in-home visits. – Liaison supervisors, generally male, work with community and religious leaders to reach fathers and husbands with messages on proper maternal and young child nutrition and on sanitation. – Work with local community health workers in supporting them with Infant and Young Child Feeding counseling at community level ▪ Social mobilization with local religious leaders, i.e., sermon notes on nutrition and hygiene. Also employ local radio messaging ▪ Outreach to non-formal schools with curriculum based on the nutrition and hygiene messages used with caregiver groups ▪ Water and sanitation interventions, primarily to address open defecation.

Project	Partners	Where?	Activities
Working to Improve Nutrition in Northern Nigeria (WINNN) (September 2011-August 2017)	<ul style="list-style-type: none"> • Federal Ministry of Health • Save the Children International • Action Against Hunger (ACF) • UNICEF Funded by DfID	Jigawa, Zamfara, Kebbi, Katsina, Yobe	<ul style="list-style-type: none"> • Aim is to reduce child undernutrition and mortality in northern Nigeria by delivering evidence-based, cost-effective nutrition interventions through the routine health services and improving government leadership and financial commitment to nutrition. • Four principal outputs sought: <ul style="list-style-type: none"> ▪ Integration of micronutrient interventions into routine primary health services, particularly through the twice-yearly Maternal, Newborn, and Child Health Week public health campaigns; ▪ Effective treatment of severe acute undernutrition through local health systems in selected LGAs, particularly through community based management of acute malnutrition (CMAM) clinics; ▪ Delivery of Infant and Young Child Feeding (IYCF) interventions in selected LGAs; and ▪ Strengthening of nutrition coordination and planning mechanisms at national and state levels. • The ORIE project (below) focuses on conducting rigorous operational research centered on WINNN to fill knowledge gaps to inform the design of nutrition programs in Nigeria and elsewhere. • Training of health workers, community mobilization, and social mobilization with community and religious leaders are components of the program. • While at outset of WINNN, focus was more strongly on addressing acute undernutrition, over the period of program implementation the focus has shifted to the prevention of undernutrition, which involves a more multi-sectoral approach.

Project	Partners	Where?	Activities
Nutrition Operations Research and Impact Evaluation (ORIE) project	<ul style="list-style-type: none"> • Oxford Policy Management • Save the Children UK • Institute of Development Studies (IDS), University of Sussex • London School of Hygiene and Tropical Medicine • University of Ibadan • Ahmadu Bello University • Food Basket Foundation International <p>Funded by DfID</p>	Jigawa, Zamfara, Kebbi, Katsina, Yobe	<ul style="list-style-type: none"> • Independent project that is focused on evaluating and providing evidence support for the WINNN project • Range of activities• <ul style="list-style-type: none"> ▪ Operations research to examine the effectiveness of different delivery mechanisms and platforms for Community-based Management of Acute Malnutrition (CMAM), IYCF, and micronutrient supplementation. ▪ Independent impact evaluation to ascertain the contribution of the WINNN project to changes in nutrition outcomes. ▪ Economic evaluation of the costs of the WINNN nutrition program and the cost-effectiveness of outputs. ▪ Dissemination of research and evaluation findings. ▪ Strengthening capacity to undertake and disseminate research to improve nutrition in the northern states of Nigeria. ▪ Cohort study to identify immediate and underlying factors associated with linear growth faltering in northern Nigerian children in the first 18 months of life. ▪ Gender research to highlight critical nutrition-related issues.
Alive & Thrive (Dec. 2015-2019)	<ul style="list-style-type: none"> • FHI360 • Many local and national partners. <p>Funded by the Bill and Melinda Gates Foundation.</p>	Lagos, Kaduna	<ul style="list-style-type: none"> • Four components to approach: <ul style="list-style-type: none"> ▪ Advocacy for improved infant and young child feeding; ▪ Interpersonal communication (face-to-face conversations with nutrition caregivers) and community mobilization (with families and influential members of the community); ▪ Mass communication to inform and remind of priority and age-appropriate infant and young child feeding behaviors; ▪ Strategic use of data to understand community barriers, and the quality, quantity, and timing of nutrition information and services available to caregivers.

Project	Partners	Where?	Activities
Kebbi State government and UNICEF joint work on nutrition, 2017	<ul style="list-style-type: none"> Joint work plan drawing resources from the two partners, Kebbi State government and UNICEF 	Kebbi	<ul style="list-style-type: none"> Four nutrition program outputs sought: <ul style="list-style-type: none"> CMAM and nutrition-sensitive interventions scaled-up, reducing prevalence of wasting among under-fives to less than 5 percent. Proportion of children under two years of age that are optimally fed increased to 70 percent through integrated ICYF and nutritional care promotion. Improved micronutrient supplementation interventions for mothers and children. Leadership, policy, institutional capacity, and partnership strengthened to scale-up nutrition interventions. Besides nutrition, several other programs: <ul style="list-style-type: none"> Health Water, sanitation, and hygiene (WASH) Basic education Communication for development – cross-cutting program The work plan for 2017 has a budget. However, the expected contribution of funding from Kebbi state government for the work plan will be 8 percent lower than the 2016 contribution from the state. That of UNICEF will increase by 45 percent. <ul style="list-style-type: none"> Nutrition and other child issues is not seen as a priority by the political and administrative leaders of Kebbi state.

Source: Authors' compilation from project documentation and interviews with project staff

There are a reasonably short set of approaches that run through many, but not all, of these projects, as well as a few others that are not listed. These include:

- Significant social mobilization efforts both for public health campaigns, such as the regular Maternal, Newborn, and Child Health Weeks, and for community level engagements, particularly on IYCF sensitization efforts. This involves working with and obtaining the support of traditional community and religious leaders on specific nutrition messaging. FOMWAN is a frequent partner in these efforts.
- The use of community public health volunteers, particularly to promote improved IYCF practices, including exclusive breastfeeding. Female volunteers go house-to-house to meet with women who are in seclusion, providing them with messages on IYCF and other good nutritional practices and monitoring the nutritional well-being of their young children. Male volunteers work with the leaders of the community and reach out to the men in the community to obtain their support for these efforts, as well as to educate them on the same information provided the women. Retired health workers were mentioned as frequently being among those who serve as community volunteers (Annex 1 interviews 28, 34, 52, 64).
- Antenatal and well-baby clinic messaging on nutrition in community health facilities. However, as noted, participation in these clinics is much lower than desirable.
- Efforts to improve hygiene and sanitation and working with women's groups on the preparation of nutrient-dense weaning foods that are based on locally available food resources. These efforts, particularly in Bauchi state, tend to be components of projects that are implemented by local NGOs (Annex 1 interviews 64, 65, 66).

- The Community-based Management of Acute Malnutrition (CMAM) is a program supported by government, UNICEF, and the WINNN project in several pilot LGAs in Bauchi and Kebbi, as well as several other states. CMAM is politically popular as it has been effective in rehabilitating the health and nutritional status of wasted, acutely malnourished young children. However, CMAM is needed only when undernutrition prevention efforts are not in place or are ineffective. That CMAM has such a high profile among nutrition programs in northern Nigeria can be seen as an indication of failure in effectively addressing chronic undernutrition in communities in northern Nigeria.

Most of these approaches are adaptations of models for nutrition outreach programs that have proven to be effective elsewhere and adapted for the northern Nigeria context. In this regard, they seem to be important efforts to make and deserve support. The short scoping study we conducted did not turn up any information that would cause one to redesign or significantly alter these approaches. No contrasting approaches to improved IYCF messaging or other efforts to reduce chronic undernutrition were observed from which to draw conclusions as to the superiority of one approach over another. More detailed monitoring and closer examination, including using rigorous quantitative evaluation methods, of the impact of these approaches would be needed to justify modifying them substantially.

However, the research resources to bring to bear on public health nutrition in northern Nigeria are not adequate for effectively addressing the full scope of the nutritional problems facing the region. While the Nutrition Operations Research and Impact Evaluation (ORIE) project, which is being done in support of the Working to Improve Nutrition in Northern Nigeria (WINNN) and is described briefly in Table 6, is a significant initiative in terms of building an evidence-base for effective nutrition programming in northern Nigeria, the project is due to end in 2017.

Only two universities in the Northwest or Northeast zones of Nigeria grant higher degrees in Human Nutrition or a closely related field. Kaduna Polytechnic offers both a national diploma program and a higher national diploma program in Nutrition and Dietetics, while Ahmadu Bello University offers both an MSc and a Post-graduate Diploma in Human Nutrition through the Department of Biochemistry. However, the content of these higher degrees is not in public health nutrition, but primarily in clinical nutrition with a focus on biochemistry and dietetics. This clinical bias in nutrition education and research is found across Nigeria, including in the highest profile nutrition programs of the country (Annex 1 interview 14). There is limited expertise on public health nutrition – as opposed to clinical nutrition – in northern Nigeria.

The most prominent Department of Human Nutrition in Nigeria is that of the University of Ibadan in southwest Nigeria. Several professors from the department are affiliated with the Food Basket Foundation International, a Nigerian NGO that conducts research on public health nutrition issues, including for the ORIE project in northern Nigeria. These two institutions have been an important part of any advances in addressing undernutrition in Nigeria, including in the north of the country, over the past two decades or more. However, both are based and primarily draw their research staff from southwest Nigeria. While their staff can do good work in northern Nigeria, given the strong differences in the nutrition situation between northern Nigeria and other areas of the country to rely on them exclusively to do so is not in the best interests of the country and is a second-best solution to providing evidence to guide efforts to reduce chronic undernutrition in northern Nigeria.

6. CONCLUSIONS

The principal objective in conducting the scoping study reported upon here was to develop a set of recommendations for investments to significantly advance reductions in malnutrition in northern Nigeria and more broadly across the country. From the interviews with experts, parents of young children, and other stakeholders on efforts to improve nutrition in Kebbi, Bauchi, and Abuja; the parallel quantitative analysis of NDHS data sets; and review of the research literature on various dimensions of chronic undernutrition in northern Nigeria, several investment priorities emerged. These recommendations are not necessarily novel and some of them simply represent some refinement on existing activities. Moreover, given the rapid nature of the scoping study, these recommendations, particularly if brought forward as potential priorities for the design of any new programs, should be validated through further and ideally more rigorous inquiries.

The recommendations are grouped into five areas – strengthening the flow of information on optimal nutritional care practices and supporting social mobilization efforts to enable the information to be used effectively; expanding nutrition training at all levels of schooling; building capacity and increasing significantly the amount of applied research conducted on public health nutrition issues in northern Nigeria; advocacy and political mobilization; and strengthening existing community and household level outreach on nutrition. There is significant activity now underway within each of these areas. However, we recommend either a deepening of some of these efforts through the provision of additional resources or somewhat more targeted approaches. We address each in turn.

Strengthening flows of information and carrying out social mobilization to promote use of optimal nutritional care practices

Our recommendations for investments in nutrition-specific activities are particularly focused on significantly improving nutritional care in northern Nigeria and across the entire country. Mothers of young children, for both biological and socially-defined reasons, must be at the center of efforts to improve knowledge on the nutritional care that their children and they themselves should receive. However, it is evident that, particularly in northern Nigeria, mothers of young children are not able to act autonomously to the degree found in other areas of Nigeria. First-time mothers are often quite young – still in their teens – and often are illiterate or have only limited education. Within the household, they typically do not participate in many of the decisions that affect their own individual well-being, as their husbands often make such decisions without consultation. They must rely on their own mothers and other older women in the community for guidance in taking care of themselves when pregnant and breastfeeding and in taking care of their young children. However, these older women will not necessarily be the best sources for such information, being relatively young themselves – many mothers in northern Nigeria will become grandmothers before they are 35 years of age – and also not well educated. Finally, there is suspicion in many communities of northern Nigeria of the information and services provided by staff at health facilities, cutting off women from accessing a potentially important source of nutritional information.

Given these social constraints on the ability of mothers to always act in their child's and their own best nutritional interests, it is important that any new investments made to improve nutritional caring practices are not focused exclusively on an individual – the mother of a young child – even though she may be the most important person to reach and to whom information on optimal nutritional care practices should ultimately be channeled. Rather a *whole community* approach should be adopted in disseminating information on optimal nutritional care practices if the principal caregiver for the young child, the mother, is to be effectively reached

with information on proper nutritional care and supported as she acts based on that information. This is in keeping with the finding of the ORIE (2016b) team on what factors were most important for effective uptake of IYCF knowledge: “Social support was the most important enabler for successful practices, especially support from husbands but also support from parents, co-wives or other community members to provide food, child care or reminders to follow the recommendations.” This recommendation also echoes those of the baseline evaluation of the Kaduna Community IYCF counselling package (Perez-Escamilla et al. 2016).

The implications of this *whole community* approach to providing information on optimal nutritional care practices on programming will include the following activities, many of which are already being undertaken in nutrition programs now underway:

- Engage explicitly with the older women in the community with messaging on improved caring practices. As noted, they are the primary source of such information for a first-time mother. However, many will simply rely on traditional knowledge that was passed to them by their own mother, which will not necessarily be optimal for the well-being of the young child or the mother. Efforts are needed to engage in a respectful dialogue with these keepers of tradition with regards to nutritional care within the community to identify which traditional practices should be supported and even intensified in their use and which should be modified or, insofar as possible, avoided. One model to consider for how this respectful engagement with the earlier generation of mothers in a community could be done is The Grandmother Project (<http://www.grandmotherproject.org/>), which has realized some success in this regard, particularly in Senegal.
- Continue to work with community volunteers to effectively communicate nutrition messages to all members of the community – to mothers and fathers of young children, of course, but also to older women and men and to community leaders, since the counsel they provide the younger generation of mothers and fathers is generally well respected and followed.
- However, the training that community volunteers receive to effectively convey these messages and the materials that they use to communicate what they learned should be of high quality and adapted for the local social and economic context. The value and validity of the training both on the nutrition messages and on how best to communicate those messages that community volunteers received must be regularly monitored, evaluated, and, where necessary, modified appropriately to ensure that those who the volunteers reach in the community can use the information in the messages immediately. Related to the quality of the training received is to explore whether more effective incentives could be designed for the volunteers to motivate the effective communication of the information to women in their home compounds.
- In parallel and if warranted, investments should be made in visual aid development and the adaptation of generic nutritional care messages so that they better respond to the particular nutritional needs that parents of young children are facing in a particular context. Observations in communities during the scoping study were that the same visual aid materials are used in both Aliero LGA in Kebbi state as in Misau LGA in Bauchi state, 650 km away. While this may not be a significant concern in this case, given the socio-cultural and economic similarities of the two sites, in other locations, more adapted materials would enhance communication of the information. The Primary Health Care Development Agency communication specialists at federal and state levels would be appropriate focal points for

such efforts, aided by public health nutrition specialists at universities and possibly drawing upon experts at the state-level Colleges of Health Technologies for both content and adaptation of messages to the local context. However, guidance on the prioritization that such an effort should receive in the context of competing claims on limited funds should be sought, particularly from the results of the evaluation work in Kaduna state on the Community IYCF counselling package (Perez-Escamilla et al. 2016), which includes the generic visual aids used in Kebbi and Bauchi states.

- Radio is an important channel to exploit for disseminating public health nutrition messages nationwide. While efforts to use radio in this way are ongoing, respondents in the scoping study gave the impression that these efforts to date are not quite equal to the potential radio offers (Annex 1 interviews 49, 52, 65). Increased investment in building capacity for developing interesting, informative, and even entertaining public health nutrition messages will enable these messages to go out to many members of target communities. New technological approaches, such as those based around the capabilities of cell phones, should also be explored. Finally, for nutrition advocacy purposes targeted at political leaders, as well as for communicating nutrition public health information, consideration should be paid to commissioning radio programs on nutrition with BBC and other foreign shortwave radio stations on their Hausa services.

The need for a whole community approach in conveying messages on proper nutritional care is a perverse consequence of the disempowerment of young mothers within these communities. In consequence, information alone will be insufficient to bring about change in IYCF and other nutritional care practices. While there are benefits to a broad whole community approach in communicating these messages, the most effective use made of the knowledge transferred will be by the young mother. As is highlighted by Lamstein et al. (2014), the recipient of the information must also have the ability to act and be motivated and have supportive convictions, perceptions, and beliefs to make use of that information to provide high quality nutritional care. The impact the use of that knowledge will have on the nutritional condition of her young child and herself can be expected to be associated quite closely with the degree to which she is socially and economically empowered to act on that knowledge. Women's relative empowerment will remain an important basic determinant of the prevalence of child (and maternal) undernutrition in northern Nigeria and an important constraint to making effective use of any information on proper nutritional care obtained.

In consequence, social mobilization will remain an important component of any efforts that aim to reduce chronic undernutrition among young children and their mothers in northern Nigeria. Northern Nigeria societies are fundamentally Muslim, and the gender ordering of northern Nigerian communities is primarily justified on religious grounds. Moreover, modern medical approaches tend to be Western in their origins, so are viewed skeptically in some conservative communities of northern Nigeria. Consequently, efforts to address chronic undernutrition in northern Nigeria must be designed in such a way that they do not offend the norms of the local community that are grounded in Islam.

For many years, FOMWAN, the national Muslim women's organization, has been an important partner in efforts in northern Nigeria to address undernutrition and other public health problems. By all accounts, FOMWAN has been very effective in doing so. Maintaining such good working relationships with Muslim organizations is critical to reducing chronic undernutrition in northern Nigeria.

However, investments should be considered to strengthen the capacity of Muslim organizations in northern Nigeria to lead efforts to address nutrition and other public health challenges, rather than simply to partner with an outside agency in a subsidiary role. While FOMWAN, as a women's organization, may not be appropriately structured to take on such a role, other Muslim organizations, such as Jama'atu Nasril Islam (JNI), which have a somewhat broader mandate than FOMWAN within the broader Muslim community of northern Nigeria, might be able to implement public health nutrition programs with some technical and financial assistance to strengthen their capacity. Such organizations likely would be better able than outside agencies to identify the technical professionals from the region who could implement such programs and would face fewer barriers in working with the traditional and religious leadership of communities in the target areas of such projects.

Finally, with regards to strengthening the flow of information on nutritional care, caution is needed with regards to investing in the near term in health facility-based outreach efforts given their current capacity challenges. Webb Girard et al. (2012) note: "Dependence on health facilities as the primary platform for delivering maternal nutrition is problematic, given severe resource constraints and perceived community barriers, including cost, distance, and poor quality of care." As is discussed below, the staff at many health facilities need improved training and many more females need to be employed for staff of these facilities to be effective at disseminating nutrition knowledge. Without significant improvement in the public health capabilities of the medical facilities in Nigeria, community-based approaches to nutrition message delivery will be required to reach the parents of young children and others who need the information.

Public health nutrition training

Investments are needed to enhance the numbers of experts on public health nutrition in northern Nigeria and elsewhere in the country. These investments certainly should consider reforming primary and secondary school curriculums to include more instruction on what is required to ensure that young children grow to their full potential. Such instruction should be given repeatedly across the progression of a student through primary and into secondary school.

However, the principal focus of such training investments should be in building a cadre of officers staffing health clinics across the country who have a good understanding of public health nutrition principles so that they can assist parents and communities address the nutritional challenges that they face. Staff of medical clinics are trained at state Colleges of Health Technology. Working with the curriculum review board for these colleges, efforts should be made to review the public health nutrition content of current curriculums used for the training of Community Health Officers (CHO – who also receive higher training at zonal health training institutions), Community Health Extension Workers (CHEW), and Junior CHEWs to ensure that all of these local health clinic staff members have the requisite skills and understanding so that they can actively address local malnutrition problems.

In addition, given the strongly gendered nature of interventions aimed at preventing undernutrition in young children, efforts should be made to explore how preferential admissions policies for women into nutrition-focused training courses at state Colleges of Health Technology could be instituted. More female staff at local health clinics are required if any success is to be realized in improving the health seeking behavior of the mothers of young children, including on nutrition-related health issues. The low enrollment of women in the state Colleges of Health Technology reflects the poor educational attainment of women in northern Nigeria,

so will take time to resolve satisfactorily. Nonetheless, some initial steps to improve the situation might be identified, such as some form of preferential admission policies to admit more women.

Finally, regarding training, investments are also needed to build programs at universities in northern Nigeria to provide MSc and PhD level training in nutrition with an emphasis on public health or community medicine. Given the millions of stunted children in northern Nigeria, there is a much stronger need for public health experts who have a close understanding of what is required from across multiple sectors to address chronic undernutrition and to prevent more children from becoming malnourished than for more experts on nutritional rehabilitation working in medical clinic settings. Moreover, how the determinants of chronic undernutrition in young children operate in northern Nigeria is quite different from how they operate elsewhere in Nigeria. Consequently, it is important that locally relevant expertise be built for conducting nutritional analysis in northern Nigeria, since it is likely that expertise in public health nutrition built out of studies done in northern Nigerian communities will be more effective in identifying approaches to reducing chronic young child undernutrition than will expertise imported from elsewhere in Nigeria or from outside of Nigeria.

However, a component in designing such investments in higher level training in public health nutrition will be establishing the career paths that trainees can follow once qualified. There is need for the creation of positions for qualified public health nutritionists at federal and state levels in ministries of health, agriculture, education, women's affairs and social development, particularly in northern Nigeria. National and international NGOs managing large programs with nutrition objectives will also be a source of demand for public health nutrition professionals.

Institutionally, significant investments over the long-term are warranted to create a center of excellence for higher-level training and research on public health (not clinical) nutrition in northern Nigeria. Such a center could be established as a stand-alone department or affiliated with Departments of Public or Community Health at one of the Universities in northern Nigeria or their associated Teaching Hospitals. The benefits of establishing such a center, in terms of significant reductions in the prevalence of stunted children or thin mothers in northern Nigeria, would likely only start to be seen several decades after such a center is founded. However, sustainable decreases in chronic undernutrition will be considerably slower otherwise. Such a center would provide the context-specific evidence to guide what actions to take to bring about those desired decreases in undernutrition in the shortest time possible. Potentially, the Feed the Future Innovation Lab for Nutrition, which is led by Tufts University and funded by USAID, could assist in the design and development of tertiary level research and training institution on public health nutrition in northern Nigeria.

Research

With specific regard to research, several topics would be of important operational relevance. This research could be done by a northern Nigeria center of excellence for public health nutrition training and research. Among the topics on which additional research would be valuable are:

- What accounts for the early introduction of liquids and complementary foods to infants and why are these adverse behaviors so resistant to changing through public health messaging and other communication channels? Public health practitioners frequently hear from community members that infants need supplemental liquids to breastmilk to avoid dehydration during the hot season in Nigeria. Similarly, it is said that mothers are unable to produce sufficient breastmilk for the

needs of their child, again primarily due to higher demand for liquids in the hot season for both mother and child. As noted earlier, there is considerable scientific evidence that these assessments are wrong – a well-hydrated mother can provide sufficient (and safe) breastmilk for the hydration needs of her child. Why then has this message on the sufficiency and safety of breastmilk proven so difficult to communicate over decades of effort in northern Nigeria and in other areas of the globe with warm climates? The estimates of exclusive breastfeeding rates from surveys in northern Nigeria and the information obtained from mothers interviewed during fieldwork suggest that the messages on exclusive breastfeeding until the child is 6 months of age are universally ignored. Continuing to expect improved results by repeating these ineffective messages is a false hope. Indeed, senior nutritionists noted that the ineffectiveness of recent efforts to promote exclusive breastfeeding is undermining broader efforts at improving IYCF (Annex 1 interviews 4, 52). Basic research on the effective communication of messages to promote exclusive breastfeeding in the context of northern Nigeria is an important research topic.

- There are a broad range of process and sociological issues related to the adoption or non-adoption of exclusive breastfeeding by an infants' mother that require further investigation. These research issues are sketched out in ORIE (2012a).
- As was highlighted in the discussion of food security as an underlying determinant of the nutritional status of young children, there is very limited quantitative information on individual dietary consumption in Nigeria. The IITA 2001-2003 survey (Maziya-Dixon et al. 2003) is the best set of information currently available, but it is not nationally representative and is now quite old, so cannot serve as an accurate guide on current food consumption patterns. A new national-scale survey is needed. While such food consumption surveys, particularly at national scale, are significantly costly undertakings, the information that they provide is needed. Anecdote on food consumption patterns is a poor basis upon which to prioritize activities to improve diets in a country the size of Nigeria and with such a significant share of the young children of the country being chronically malnourished.
- As discussed, most of the community and household-level nutritional programs being implemented in northern Nigeria are adaptations of models for programs proven effective elsewhere. The scope of the study in Bauchi and Kebbi states was such that no rigorous evaluation could be made of the efficacy of the programs now in place or whether alternatives would be more suited to the nutritional challenges of northern Nigeria. Rigorous quantitative evaluations using experimental designs should be done to assess the value and impact of these approaches. Though expensive, identifying and implementing more effective and rapid approaches to sharply reduce the burden of chronic undernutrition in northern Nigeria will provide rapid returns on investments in any such research.
- Finally, there is need for more in-depth quantitative analysis of nutrition-relevant panel survey data, preferably, to better understand how determinants operate to impact the nutritional status of young children and women of childbearing age in northern Nigeria. Longhurst and Cornelius (2013) note that “to achieve sustained improvements in child nutrition it is important to understand more about the complex pathways underlying child undernutrition with the help of longitudinal data. (p.84).”

The principal motivation for most research on public health nutrition is to better understand the mechanisms that result in good or poor nutritional status and to use that information to design appropriate interventions

to sustainably improve the nutritional status of those targeted. However, the results of such research are also important for public policy engagement, assisting government and its leaders to determine how best to prioritize where public resources should be allocated across the many development challenges the government is facing. Any investments in future research on public health nutrition in northern Nigeria, especially, must be designed in such a manner that the results of the research, insofar as possible, can contribute to policy debates on how to best mobilize and allocate government resources to effectively reduce chronic undernutrition.

Advocacy and political mobilization efforts at state and LGA levels

In this regard, advocacy and political mobilization for increased allocations of public resources to address chronic undernutrition should be a component of any broad program of investment on nutrition in Nigeria. Current commitments made by federal, state, and local governments relative to those made by Nigeria's development partners are disconcertingly small for a country with such wealth. Much of the nutrition advocacy work over the past ten to fifteen years in Nigeria has focused on the formulation of nutrition policy statements and strategies. However, increasingly it is realized that there also needs to be specific advocacy efforts for increased resource allocations. Ultimately the aim of any investments in nutrition advocacy in Nigeria should be to see greater allocations of funding, personnel, and institutional attention to activities in the public sector that will have a significant positive impact on nutritional outcomes for young children and their mothers. The advocacy efforts will translate policies and strategies into budgets and work plans.

However, the quality of the public investments advocated for are important to keep in mind. As noted, most of the current investments in nutrition made by government are strongly oriented towards managing acute undernutrition, such as under CMAM, and involve health sector centered approaches. However, such investments can be readily seen as responses to a more systemic failure in addressing the causes of chronic undernutrition. Resources for preventative actions involving multi-sectoral approaches are required in the first instance, rather than for nutritional rehabilitation services (ORIE 2015). It was noted by respondents in the scoping study that the Ministry of Health and the PHCDA seems to feel that they have privileged positions in the coalition of actors who need to engage in efforts to prevent undernutrition (Annex 1 interviews 11, 28, 29). It is only the Ministry of Health that has a nutrition-specific line in their annual budget. If the focus is on preventing undernutrition, contributions across a range of sectors are required, including those of agriculture, education, social protection, and water and sanitation. The cross-sectoral nature of actions to prevent chronic undernutrition need to be part of any advocacy message.

How this advocacy effort can be done most effectively is not clear. Certainly, current efforts can be built upon, but modified to focus somewhat more on the allocation of public resources to fund the commitments earlier stated than on the commitments alone. An element of advocating for increased allocation of resources is also ensuring increased accountability on the use of the resources committed to nutrition. They are not always spent or, if spent, not always well-spent (Annex 1 interviews 32, 61).

Often important to such efforts to raise the profile of nutrition as a national priority are high-level champions – social, religious, or political leaders who command the attention of policy makers and senior technical staff. Past nutrition advocacy efforts focused on state governors or their wives to champion nutrition, sometimes with success. Comments by the Emir of Kano (*Daily Sun* newspaper, 6 April 2017) on the human development failures that northern Nigeria has experienced and which fall heavily on its children or similar statements by

senior regional political and religious community leaders from northern Nigeria could possibly be built upon to shift government priorities and budgets to human development efforts, including to address chronic undernutrition. In addition, local level actors, including civil society and non-governmental organizations, can significantly affect the perspectives of local leaders on the issue of nutrition (ORIE 2013) and how public resources are then allocated.

Support to existing community and household level outreach on nutrition

There are seemingly reasonably effective nutrition efforts now underway in northern Nigeria (although, as noted, rigorous research to evaluate their effectiveness is needed). Some of these programs and projects are facing the end of funding cycles or are systematically underfunded. Investments could be made in these ongoing projects to expand their reach or to extend their operations over time.

From the perspective of policy research, the WINNN/ORIE collaboration is the most interesting of current activities. These joint projects are due to wind up in 2017 or 2018. It was not clear during the scoping study whether there was any prospect of a new phase to either. However, it would be surprising if there was not a considerable constituency of nutrition stakeholders in northern Nigeria supporting a continuation of these two related projects.

Likewise, UNICEF's engagement with PHCDA on nutrition at local and state levels generally seems to be a productive technical relationship, even if the government agency relies quite heavily on the funding that UNICEF provides, rather than on public funds. Here too there may be good reason for additional funding to maintain or expand the program.

Nonetheless, the burden of undernutrition in northern Nigeria remains daunting with about half of all young children being stunted in their growth. While the scoping study did not find much to specifically criticize in current nutrition programming, nutrition actions that are currently being undertaken offer little promise of bringing about a significant decline in the prevalence of child stunting particularly in northern Nigeria in the short term. The investments suggested in this chapter will not transform and radically accelerate this process. But they do offer a somewhat more sustainable, effective, and efficient approach to bringing about reductions in chronic undernutrition in the country than is currently the case.

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ANNEXES

Annex 1: Interviews for scoping study on chronic malnutrition in northern Nigeria

Fieldwork to conduct qualitative key-informant interviews and focus group discussions was conducted in Kebbi and Bauchi states over the period 5 to 22 April 2017. For several days prior to and after the fieldwork, key-informant interviews were done in Abuja.

As listed in Table 7, 67 interviews or focus group discussions were completed – 13 in Abuja; 23 in Kebbi state (including one in Sokoto city), and 31 in Bauchi state. Over 170 persons participated in the interviews. Government officials and community members were the most common respondents in the interviews.

The interviews generally were between 30 and 45 minutes in length. The guide for the interviews conducted in Abuja is presented in Annex 2, while the guide for the interviews in Kebbi and Bauchi states is presented in Annex 3. These guides were used loosely – respondent(s) were probed closely on elements in the guide on which they were expected to have significant information. Other issues were only raised in the interview to ensure that an opportunity was given the respondent(s) to provide their perspective, if any, on those issues.

Interviews with community members in the initial days of fieldwork in the two study states tended to be in sex-segregated focus groups. However, it became apparent that the information obtained in such group settings on issues on which multiple perspectives could be expected tended to be a consensus opinion either that reflected expectations on the part of the respondents as to what they thought we in the study team wanted to hear or to give a veneer of success to any nutrition-specific activities in the community. To obtain a broader set of opinions from community members, as fieldwork in each state continued, individual interviews were preferred.

Table 7. List of interviews conducted in Abuja, Kebbi state, and Bauchi state in April and May 2017 for scoping study on chronic malnutrition in northern Nigeria

#	Date	Location	Person(s)	Participants	Respondent category
Abuja interviews					
1.	3 Apr	Abuja (phone)	Consultant on nutrition for Nutrition Education and Capacity Strengthening project, and Food Basket International Foundation	1	Academia, Research
2.	3 Apr	Abuja	USAID/Nigeria team from both health and agriculture sectors, in person (3) and on phone (4).	7	Donor
3.	3 Apr	Abuja	Senior Advisor on Food Security and Nutrition to the Honourable Minister; Federal Ministry of Agriculture and Rural Development	1	Government
4.	25 Apr	Abuja	Head of Nutrition / Scaling-Up Nutrition (SUN) Focal Point Department of Family Health Federal Ministry of Health	1	Government
5.	3 Apr	Abuja (phone)	Nutrition Advisor Bill and Melinda Gates Foundation – Nigeria	1	International NGO/CSO
6.	4 Apr	Abuja	Country Director Helen Keller International	1	International NGO/CSO

#	Date	Location	Person(s)	Participants	Respondent category
7.	4 Apr	Abuja	Country Director; and Regional Program Director for Strengthen African Processors of Fortified Foods (SAPFF) project Technoserve	2	International NGO/CSO
8.	26 Apr	Abuja	Program Officer Economic Justice and Improved Livelihoods Program OXFAM-Nigeria	1	International NGO/CSO
9.	26 Apr	Abuja	Programme Manager, Health European Union – Abuja office	1	International NGO/CSO
10.	26 Apr	Abuja	Nutrition Specialist UNICEF – Nigeria country office	1	International NGO/CSO
11.	27 Apr	Abuja	Head of Nutrition; Save the Children – Nigeria; Project leader; Working to Improve Nutrition in Northern Nigeria (WINNN); and Project leader; Household Economy Analysis (HEA)	3	International NGO/CSO
12.	2 May	Abuja	Team Lead, Nutrition and WASH Program; and Technical Program Director Catholic Relief Services – Nigeria	2	International NGO/CSO
13.	4 Apr	Abuja	Coordinator and two Program Officers; Civil Society group for Scaling-Up Nutrition (CS-SUN) in Nigeria	3	National NGO/CSO
<u>Kebbi state interviews</u>					
14.	9 Apr	Sokoto Sokoto state	Biochemical Nutritionist Department of Biochemistry Usmanu Danfodiyo University Teaching Hospital	1	Academia, Research
15.	11 Apr	Jega town Jega LGA Kebbi state	Principal; and Head, Department of Nutrition and Dietetics Kebbi state School of Health Technology Jega	2	Academia, Research
16.	6 Apr	Tarassa community Birnin Kebbi LGA Kebbi state	Men's group in Tarassa community, associated with IFAD-CASP project	40	Community members
17.	6 Apr	Tarassa community Birnin Kebbi LGA Kebbi state	Women's group in Tarassa community, wives of men associated with IFAD-CASP project	30	Community members
18.	6 Apr	Makera community Birnin Kebbi LGA Kebbi state	Men's group in Makera community, associated with IFAD-CASP project	25	Community members
19.	6 Apr	Makera community Birnin Kebbi LGA Kebbi state	Women's group in Makera community, wives of men associated with IFAD-CASP project	20	Community members
20.	8 Apr	Jiga Birni community Aliero LGA Kebbi state	Women's group associated with the Jiga Birni primary health care center. (Group has combination of primary health care and microenterprise support objectives.)	20	Community members
21.	8 Apr	Jiga Birni community Aliero LGA Kebbi state	Men's group from Jiga Birni, including traditional and religious leaders	50	Community members
22.	11 Apr	Jega town Jega LGA Kebbi state	Two women with their infants attending Jega CMAM clinic	2	Community members
23.	11 Apr	Matankary community Birnin Kebbi LGA Kebbi state	Group of one male and five female community liaison officers Nigeria Livelihood Project (Feed the Future project) being implemented by Catholic Relief Services-Nigeria	6	Community members

#	Date	Location	Person(s)	Participants	Respondent category
24.	6 Apr	Birnin Kebbi Kebbi state	IFAD-CASP project coordinator; Senior agricultural extension field officer; and Women and Youth program manager IFAD Climate Change Adaptation and Agribusiness Support Programme (CASP) Kebbi State Agricultural Development Program (ADP)	3	Government
25.	6 Apr	Birnin Kebbi Kebbi state	Director of Public Health; and Deputy State Officer for Nutrition Ministry of Health, Kebbi state	2	Government
26.	8 Apr	Aliero town Aliero LGA Kebbi state	Deputy Director; Focal Point for Nutrition; and Senior Community Health Extension Officer Primary Health Care Development Agency Aliero LGA, Kebbi state	3	Government
27.	8 Apr	Dakala community Aliero LGA Kebbi state	Community Environmental Health officer Dakala Health Post (Dispensary)	1	Government
28.	10 Apr	Birnin Kebbi Kebbi state	Nutrition Program Consultant, UNICEF State Ministry of Health Kebbi state	1	Government
29.	10 Apr	Birnin Kebbi Kebbi state	Director of Budget and Planning State Ministry of Budget and Economic Planning Kebbi state	1	Government
30.	11 Apr	Jega town Jega LGA Kebbi state	Nutrition Focal Officer Community-based Management of Acute Malnutrition (CMAM) clinic Jega LGA	1	Government
31.	11 Apr	Birnin Kebbi Kebbi state	Head Women in Agriculture Department State Ministry of Agriculture	1	Government
32.	12 Apr	Birnin Kebbi Kebbi state	Director; and Director of Planning and Research State Ministry of Women Affairs and Social Development	2	Government
33.	10 Apr	Birnin Kebbi Kebbi state	Kebbi state Program Manager; and Kebbi state Desk Officer Nigeria Livelihood Project (Feed the Future project) Catholic Relief Services-Nigeria	2	International NGO/CSO
34.	7 Apr	Birnin Kebbi Kebbi state	Coordinator Royal Health Care Impact Society	1	National NGO/CSO
35.	7 Apr	Birnin Kebbi Kebbi state	State Amira; Secretary of the association, and; Assistant zonal coordinator; FOMWAN - Kebbi state (Federation of Muslim Women's Associations of Nigeria)	3	National NGO/CSO
36.	12 Apr	Birnin Kebbi Kebbi state	Chairman; Secretary; Treasurer; and two female Public Relations Officers Kebbi state chapter Jama'atu Nasril Islam (JNI)	5	National NGO/CSO
Bauchi state interviews					
37.	11 Apr	Bauchi Bauchi state	Male hamlet heads from urban neighborhood in Bauchi city	15	Community members
38.	12 Apr	Hardawa community Misau LGA Bauchi state	Woman with infant at Hardawa Primary Health Care Center	1	Community members

#	Date	Location	Person(s)	Participants	Respondent category
39.	12 Apr	Hardawa community Misau LGA Bauchi state	Representatives of Village Head of Hardawa community (village council members) – CSO liaisons x 2; Education (<i>Maarafa</i>) liaison; and Health liaison	4	Community members
40.	12 Apr	Zindi community Misau LGA Bauchi state	Village Head, advisors, and male community members	30	Community members
41.	21 Apr	Katagum community Katagum LGA Bauchi state	Six women who were attending clinic with their young children to obtain either Ready-to-Use Therapeutic Food for their malnourished child or post-natal services (immunization) Katagum Primary Health Care Centre	6	Community members
42.	22 Apr	Hardawa community Misau LGA Bauchi state	Group of women of older children (post-breastfeeding)	6	Community members
43.	22 Apr	Hardawa community Misau LGA Bauchi state	Individual woman, mother of young child of about 2 ½ years	1	Community members
44.	22 Apr	Hardawa community Misau LGA Bauchi state	Recent graduate of Environmental Health diploma course at Bauchi state College of Health Technology (female, unemployed)	1	Community members
45.	22 Apr	Hardawa community Misau LGA Bauchi state	Three female community volunteers Who through 2015 worked under Pioneers Reproductive Health and Youth Association, a local NGO implementing locally activities of Targeted States High Impact Project (TSHIP)	3	Community members
46.	22 Apr	Hardawa community Misau LGA Bauchi state	Two groups of men from Hardawa community, eight men in total. One group consisted of reasonably well-educated men, the members of other group had not completed primary school	8	Community members
47.	22 Apr	Zindi community Misau LGA Bauchi state	Group of 12 men from Zindi community	12	Community members
48.	22 Apr	Zindi community Misau LGA Bauchi state	Three male community health volunteer supervisors from Zindi community	3	Community members
49.	12 Apr	Misau Misau LGA Bauchi state	Monitoring and Evaluation Officer Primary Health Care Development Agency Misau LGA	1	Government
50.	12 Apr	Misau Misau LGA Bauchi state	UNICEF-Misau LGA liaison officer Primary Health Care Development Agency Misau LGA	1	Government
51.	12 Apr	Hardawa community Misau LGA Bauchi state	Deputy in Charge and Community Health Officer (CHO) Hardawa Primary Health Care Center Misau LGA	1	Government
52.	13 Apr	Bauchi Bauchi state	State Nutrition Officer; and Nutrition Program Consultant (UNICEF-supported) Primary Health Care Development Agency Bauchi state	2	Government
53.	19 Apr	Bauchi Bauchi state	Permanent Secretary; and Director of Women’s Affairs in the Child Development Department State Ministry of Women Affairs and Social Development	2	Government
54.	19 Apr	Bauchi Bauchi state	Deputy Director for Nutrition and Food Safety Primary Health Care Development Agency Bauchi state	1	Government
55.	20 Apr	Bauchi Bauchi state	Principal Planning Officer; and Planning Officer State Ministry of Budget and Planning	2	Government

#	Date	Location	Person(s)	Participants	Respondent category
56.	20 Apr	Bauchi Bauchi state	Deputy Director Women in Agriculture (WIA) Department Bauchi state Agricultural Development Program	1	Government
57.	21 Apr	Katagum community Katagum LGA Bauchi state	Nutrition Officer Katagum Primary Health Care Centre	1	Government
58.	21 Apr	Hardawa community Misau LGA Bauchi state	Teacher Hardawa central primary school	1	Government
59.	22 Apr	Zindi community Misau LGA Bauchi state	Community Health Extension Worker (CHEW), part-time, male Zindi Maternity clinic	1	Government
60.	19 Apr	Bauchi Bauchi state	Project Coordinator; Nutrition Advisor; and Youth Enterprise Development Advisor OXFAM - Bauchi State	3	International NGO/CSO
61.	19 Apr	Bauchi Bauchi state	Field Manager; and Nutrition Coordinator Save the Children International (SCI) – Bauchi state	2	International NGO/CSO
62.	19 Apr	Bauchi Bauchi state	Nutrition Specialist; and Nutrition Officer UNICEF - Bauchi field office	2	International NGO/CSO
63.	11 Apr	Bauchi Bauchi state	Former WASH project manager Women's Empowerment Institute	1	National NGO/CSO
64.	11 Apr	Bauchi Bauchi state	Representatives of member organizations (20 of 50 total institutional members present) Bauchi State Network of Civil Society Organizations (BASNEC)	20	National NGO/CSO
65.	11 Apr	Bauchi Bauchi state	Executive Directors of member organizations Network of Civil Society for Water and Sanitation (NEWSA), Bauchi state	4	National NGO/CSO
66.	12 Apr	Misau Misau LGA Bauchi state	Director; Field Supervisor; and Nutrition Activities Coordinator Pioneers Reproductive Health and Youth Association	3	National NGO/CSO
67.	20 Apr	Bauchi Bauchi state	Representatives of Executive Director (two) Bauchi state chapter Jama'atu Nasril Islam (JNI)	2	National NGO/CSO

Guide for interviews to be conducted with stakeholders at NATIONAL LEVEL

for the

Study on determinants of chronic malnutrition in young children in Kebbi and Bauchi states

This study is being done by the Nigeria Strategy Support Program of the International Food Policy Research Institute as an activity under the Feed the Future Nigeria Agricultural Policy Project, which is funded by USAID/Nigeria and jointly implemented by IFPRI and Michigan State University.

Informants for the study at national level will include technical experts within the Federal government involved in agriculture and nutrition programming, managers of NGOs engaged in similar work at national level, bilateral and multilateral development partners who are supporting nutrition interventions in Nigeria, including US government agencies and their implementing partners, and other key stakeholders on nutrition issues in the country.

-
1. In any interview, start the interview with a description of the study. Highlight:
 - **Objective of the study:** To identify the drivers of stunted growth due to chronic malnutrition in young children in Kebbi and Bauchi states. This knowledge will be used to guide the design of feasible strategies for improving the nutritional status of young children in northern Nigeria.
 - **Analytical framework:** As with similar studies worldwide, the study in Kebbi and Bauchi states uses the *UNICEF conceptual framework* of the determinants of child nutritional status, focusing principally on the three underlying determinants of:
 - quality of nutritional care received by the young child,
 - healthiness of local environment and the quality of health services the child receives, and,
 - the food security of the household of which the young child is a member.
 2. How do the activities of the institution in which the informant works intersect with the objective of this study?
 - Does the informant and his or her agency work on addressing malnutrition in Nigeria?
 - Where do they work? Do they have any work in Northeast or Northwest zones? In Bauchi or in Kebbi states?
 - Does the work focus on a particular underlying determinant of child nutrition – food security, care, or health and sanitation? Or do they engage more broadly over all of the underlying determinants of nutritional status?
 - Who do they partner with at federal, state, and local community levels?
 - What was the process through which their program of work was designed?
 - In particular, what evidence on the determinants of child malnutrition did they draw upon in making decisions on how best to address malnutrition in their work.
 - Was the UNICEF conceptual framework of the determinants of child nutrition used explicitly in the design of their activities? If so, in what ways?
 - Program implementation (if applicable):
 - What are the qualifications of the technical staff used to implement their programs at state and local community levels?
 - What is being done in program implementation to ensure that any positive impacts achieved endure into the future?

3. Ask the informant to do an analysis of the causes of child stunting in Bauchi and Kebbi states using the following questions to prompt their thinking.
(Note to them that we are asking them to do this only to the best of their abilities from their own experience and expertise as a way of gaining insights into this problem.)
 - The 2013 Nigeria DHS estimated the prevalence of under-fives who are stunted (low height-for-age) in Bauchi at 50.8 percent and in Kebbi at 60.6 percent versus 37 percent for Nigeria as a whole. Why do you think stunting rates are so high in the two states? What are the principal determinants of these high levels in the two states?
 - The stunting prevalence in Kebbi is the worst of all states in Nigeria. Why?
 - Several states in the Northwest (Sokoto - 51.6% in 2013) and Northeast (Adamawa - 34.3% in 2013) have lower stunting levels. What are the principal differences between these states and Kebbi and Bauchi that result in much lower levels of chronic malnutrition in young children in the same zones?
 - The 2013 Nigeria DHS estimated prevalence of wasting (low weight-for-height) among under-fives in Bauchi at 23.3 percent and in Kebbi at 18.1 percent. These are levels of wasting that characterize near-famine conditions in other areas of the world. Why do you think wasting rates are so high in the two states?
 - Is wasting a chronic or an acute condition in Bauchi and Kebbi states?
 - Are the principal drivers of wasting there related to food insecurity, nutritional care, such as poor breastfeeding or weaning practices; medical and public health reasons; or a combination?
 - Fieldwork for the 2013 DHS was conducted from mid-February to the end of May. Do you feel that there is a strong seasonal factor accounting for the high levels of wasting estimated from the DHS in Bauchi and Kebbi, in particular? If so, what seasonal factors?
4. Close the interview by giving the respondent a chance to ask questions about our study. Also highlight that the results will be disseminated to all respondents in a report and that a public presentation of the results will be made in Abuja – tentatively in late-May.
 - Ensure that you obtain full contact details on the respondent for follow up and in order to be able to provide the study report to her or him later.

Guide for interviews to be conducted with stakeholders at STATE LEVEL

for the

Study on determinants of chronic malnutrition in young children in Kebbi and Bauchi states

This study is being done by the Nigeria Strategy Support Program of the International Food Policy Research Institute as an activity under the Feed the Future Nigeria Agricultural Policy Project, which is funded by USAID/Nigeria and jointly implemented by IFPRI and Michigan State University.

Informants for the study at state level will include technical experts within the state government involved in nutrition programming, managers of NGOs operating within the state engaged in public health nutrition work, and other key stakeholders on nutrition issues in the state.

-
1. In any interview, start the interview with a description of the study. Highlight:
 - **Objective of the study:** To identify the drivers of stunted growth due to chronic malnutrition in young children in Kebbi and Bauchi states. This knowledge will be used to guide the design of feasible strategies for improving the nutritional status of young children in northern Nigeria.
 - **Analytical framework:** As with similar studies worldwide, the study in Kebbi and Bauchi states uses the *UNICEF conceptual framework* of the determinants of child nutritional status, focusing principally on the three underlying determinants of:
 - quality of nutritional care received by the young child,
 - healthiness of local environment and the quality of health services the child receives, and,
 - the food security of the household of which the young child is a member.
 2. How do the activities of the institution in which the informant works intersect with the objective of this study?
 - Does the informant and his or her agency work on addressing malnutrition in Kebbi/Bauchi states?
 - Where do they work in the state?
 - Does the work focus on a particular underlying determinant of child nutrition – food security, care, or health and sanitation? Or do they engage more broadly over all of the underlying determinants of nutritional status?
 - Who do they partner with both at state and at local community levels?
 - What was the process through which their program of work in Kebbi/Bauchi was designed?
 - In particular, what evidence on the determinants of child malnutrition did they draw upon in making decisions on how best to address malnutrition in their work.
 - *If aware of the framework* – Was the UNICEF conceptual framework of the determinants of child nutrition used explicitly in the design of their activities? If so, in what ways?
 - Program implementation (if applicable):
 - What are the qualifications of the technical staff used to implement their programs at state and local community levels? Are they trained in public health and the prevention (not only treatment) of child malnutrition? Are any trained staff working on public health nutrition in the agency from Kebbi/Bauchi itself, or do they come from elsewhere in Nigeria? Are any of them women?

- What is being done in program implementation to ensure that any positive impacts achieved endure into the future?
3. Ask the informant to do an analysis of the causes of child stunting in Kebbi/Bauchi state using the following questions to prompt their thinking.
(Note to them that we are asking them to do this only to the best of their abilities from their own experience and expertise as a way of gaining insights into this problem.)
- The 2013 Nigeria DHS estimated the prevalence of under-fives who are stunted (low height-for-age) in Kebbi at 60.6 percent (Bauchi at 50.8 percent) versus 37 percent for Nigeria as a whole. Why do you think stunting rates are so high in Kebbi/Bauchi? What are the principal determinants of these high levels?
 - Other states in the Northwest (Sokoto - 51.6% in 2013) (Northeast (Adamawa - 34.3% in 2013)) have lower stunting levels. What are the principal differences between these states and Kebbi/Bauchi that result in lower levels of chronic malnutrition in young children in these neighboring states?
4. Close the interview by giving the respondent a chance to ask questions about our study. Also highlight that the results will be disseminated to all respondents in a report and that a public presentation of the results will be made in Abuja – tentatively in late-May.
- Ensure that you obtain full contact details on the respondent for follow up and in order to be able to provide the study report to her or him later.
