

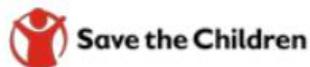
# Quantitative Impact Evaluation of the WINNN programme

Summary Report

Operations Research and Impact Evaluation

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## Introduction

Operations Research and Impact Evaluation (ORIE) is led by Oxford Policy Management (OPM) in conjunction with three other UK-based institutions, the London School of Hygiene and Tropical Medicine (LSHTM), the Institute of Development Studies (IDS) and Save the Children UK (SCUK), and four Nigerian partners, the University of Ibadan, Kaduna Polytechnic, Ahmadu Bello University at Zaria (ABU), and the Food Basket Foundation International (FBFI).

ORIE is funded by the Department for International Development of the UK Government and implemented in collaboration with the Government of Nigeria.

This report presents the results of the quantitative impact evaluation of the Working to Improve Nutrition in Northern Nigeria (WINNN) programme. Its purpose is to provide a quantitative evaluation of the impact of the WINNN programme in the three years since the baseline study. Separate reports provide the results of the qualitative impact evaluation and the cost-effectiveness evaluation. These reports, together with the quantitative impact evaluation, are integrated into a final integrated evaluation report, which is also presented separately.

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## The WINNN programme

The WINNN programme is an ambitious £52 million, six-year, UK Department for International Development (DFID)- funded programme (2011–2017) to improve maternal, newborn and child nutrition in five states in northern Nigeria. WINNN is implemented by three partners: Save the Children, Action Against Hunger and the UN Children’s Fund (UNICEF). WINNN is designed to deliver effective and cost-effective nutrition-specific interventions while improving government commitment to solving malnutrition. The delivery of these interventions through government is expected to build government systems and capacity for implementation, and ultimately to institutionalise them within routine health care systems. This is expected to raise the political profile of undernutrition in Nigeria and to leverage government to coordinate and fund nutrition programmes.

The broad outputs of the WINNN programme are as follows:

- Output 1: Integration of micronutrient intervention into routine primary health services.
- Output 2: Delivery of effective infant and young child feeding (IYCF) interventions in selected states and local government areas (LGAs) in northern Nigeria.
- Output 3: Delivery of effective treatment for severe acute malnutrition (SAM) through local health systems in selected states and LGAs in northern Nigeria.
- Output 4: Strengthening of nutrition coordination and planning mechanisms at national and state level.
- Output 5: Operations Research and Impact Evaluation (ORIE) (independent impact evaluation).

ORIE is responsible for undertaking operations research and assessing the impact of the WINNN programme. The ORIE project is composed of five workstreams: (1) operations research; (2) impact evaluation; (3) economic evaluation; (4) evidence dissemination and uptake; and (5) supporting national researchers in nutrition.

## The impact evaluation of the WINNN programme

The impact evaluation aims to answer the following question: what is the impact of the WINNN programme as whole on population-based, LGA-wide indicators of nutritional behaviours and nutritional status and provision of nutrition services? The overall approach chosen to answer this question is to utilise a mix of quantitative and qualitative methods to arrive at a complete assessment of the impact of the WINNN programme as a whole. The impact of individual interventions or WINNN outputs – as technologies – was not assessed as there already exists an extensive evidence base for these interventions<sup>1 2</sup>.

For the sake of simplicity, the WINNN outputs can be divided into two broad categories: interventions that are focused at the level of the LGA (Outputs 2 and 3) and interventions that are focused at the level of the state and federal governments (Outputs 1 and 4). For interventions implemented at the level of the LGA (IYCF counselling and the Community-based Management of Acute Malnutrition (CMAM) programme), the impact assessment uses a quasi-experimental design

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<sup>1</sup> Bhutta, Z.A. *et al.* (2013) ‘Maternal and Child Undernutrition and Overweight in Low-income and Middle-income Countries’, in *Maternal and Child Nutrition 1*, *Lancet*.

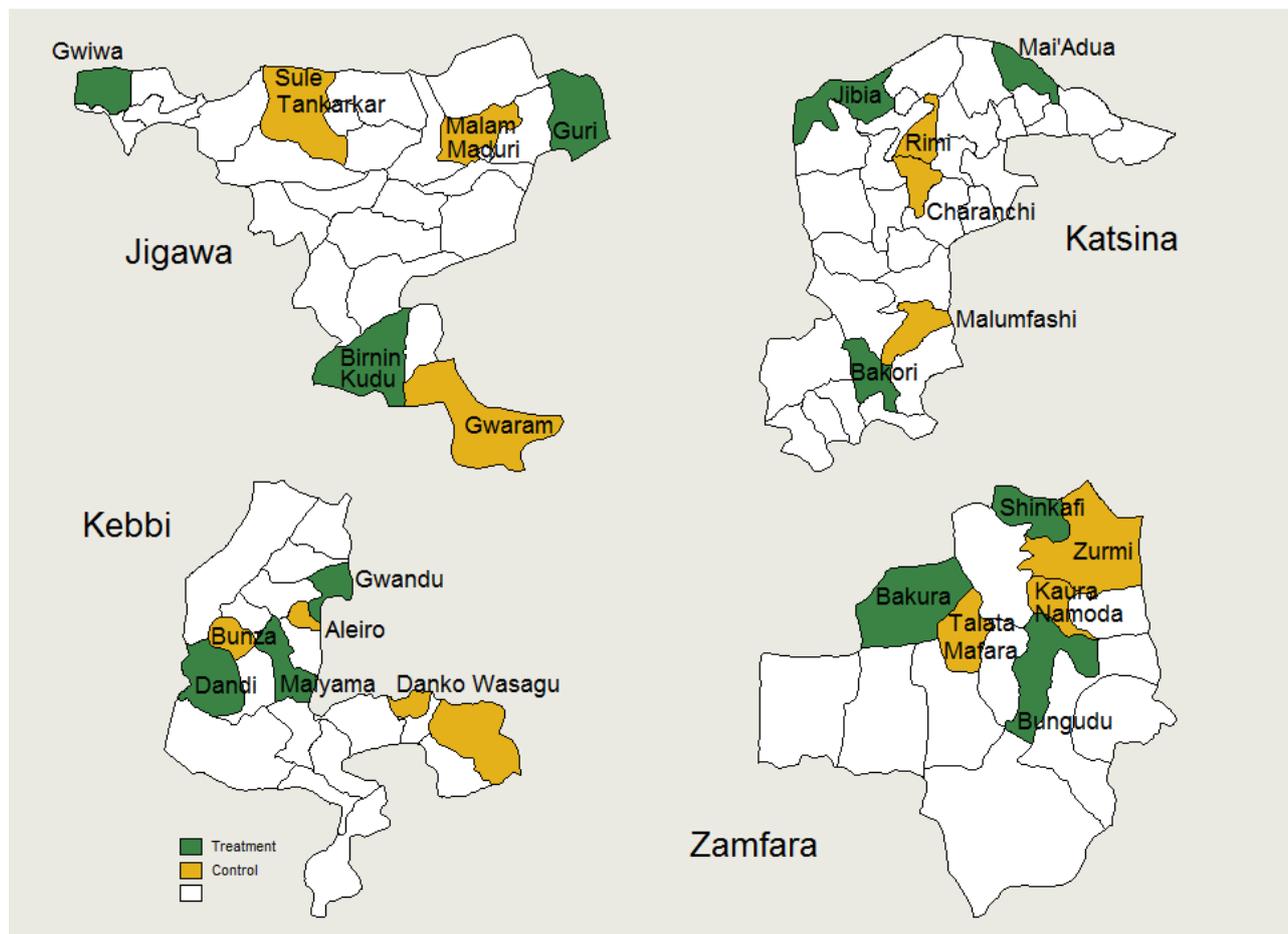
<sup>2</sup> Longhurst, R., A. Cornelius, and L. Haddad (2013) ‘Nutritional Status in Northern Nigeria, Prevalence and Determinants: A Review of Evidence prepared for the ORIE Component of the WINNN Programme’, ORIE Nigeria, unpublished.

relying on data from population-based quantitative surveys, combined with community-level qualitative research. For interventions implemented at the state and federal levels, an exclusively qualitative approach is used and is presented in a separate report ([Qualitative Evaluation of the WINNN Programme, 2017](#)).

## The impact evaluation methodology

This quantitative impact evaluation uses a quasi-experimental design to identify and quantify the changes in key indicators that can be attributed to two components of WINNN: the IYCF counselling and the CMAM programme interventions. To do so, it uses data collected from a panel of 3,229 households, with the same households surveyed at baseline (June 2013) and endline (June 2016). Data were collected from both LGAs where WINNN has operated (treatment LGAs) and LGAs where WINNN has not operated (control LGAs). In total, there were three treatment and three control LGAs per state:

**Figure 1: Treatment and control LGAs in Jigawa, Katsina, Kebbi and Zamfara**



The quantitative survey is complemented with community-level qualitative research to explore quantitative trends in more detail. The community-level qualitative research at endline was designed to provide more insights on key topics identified in the WINNN quantitative analysis ([Qualitative Evaluation of the WINNN Programme, 2017](#)). The qualitative community research explores caregivers' IYCF knowledge, household relations that affect infant feeding, and the work and influence of community volunteers (CVs) and health workers. The research utilises participatory methods, including a visual tool to analyse the influence of different household members over infant feeding decisions, and stories of change.

## How to identify the impact of WINNN

Since WINNN-supported interventions were not allocated randomly to treatment and control LGAs, and various components of the programme began at different stages, a simple comparison of

treatment and control areas at baseline is not sufficient to robustly estimate the effect of the WINNN programme. We therefore use a 'difference-in-difference' approach, which measures the differential outcome between estimates in treatment and control areas over time (double-difference). The underlying assumption that must hold for this approach to work is that the difference in outcomes between treatment and control areas would have been constant over time had it not been for the WINNN-supported interventions. This approach effectively factors out all pre-existing differences between the two groups so as to be able to assess the impact of the WINNN programme.

## Contextualising the findings

### Context of northern Nigeria

One of the most important contextual factors that must be considered when interpreting findings is the severe scale of the burden of undernutrition in Nigeria. The National Nutrition and Health Survey (NNHS) of 2015 estimated that 33% of children under five are stunted, and together with Nigeria's large population, this translates to the second largest number of stunted children globally.<sup>3 4</sup> Within Nigeria, the women and children of the northern states have the worst health outcomes and the lowest access to health services, with high rates of infant and child mortality and less than 50% of women receiving any antenatal care (ANC).<sup>5</sup>

The challenge of operating in this context is compounded by WINNN's implementation model, which seeks to deliver interventions through the government health system and indeed strengthen the system in so doing. The health system in northern Nigeria is fragmented and weak, and often under-staffed and under-resourced.<sup>6</sup> The inadequacy of human resources for health (in terms of both skills and numbers), particularly in rural and remote areas, is an important constraint to the provision of health services.

Adding to these complexities was the fiscal crisis starting in 2015, caused by the large drop in the price of oil, reflected in the non-payment of health worker's salaries for much of 2015/16 in most of the WINNN states. This understandably reduced health worker's motivation, and their absence from work has compounded the inadequacy of human resources for health. The adverse fiscal situation has also affected the release of public funds for nutrition<sup>7</sup>.

A further constraint is the intensely conservative gendered social norms and practices in northern Nigeria.<sup>8</sup> These act as a constraint on women's uptake of health and nutrition services and on changing ingrained traditional infant feeding practices. Women marry at an early age (at 15 years on average), often to older men (average age gap of 13.5 years), and bear children early (at 17 years on average).<sup>9</sup> Their mobility is often limited upon marriage, as are their opportunities to earn an income. Many women have limited decision-making power relative to their husbands and older women in the home on issues like use of household income, child healthcare and feeding. Levels of formal education are low across the population, and especially among women. Husbands may refuse to allow their wives to attend services at health facilities or withhold the cash needed to travel to health facilities, and many older women have been resistant to the adoption of recommended IYCF practices that are contrary to the way they fed their own children. These factors hinder mothers' ability to care for their children, to access health and nutrition services for themselves and their children, and to adopt recommended IYCF practices, and have been shown to underpin poor child nutritional outcomes in Nigeria.<sup>10 11</sup>

<sup>3</sup> NNHS 2015 (2015) 'National Nutrition and Health Survey (NNHS) – Report on the nutrition and health situation of Nigeria', 2015.

<sup>4</sup> United Nations Children's Fund, *Improving Child Nutrition: The Achievable Imperative for Global Progress* (New York: UNICEF, 2013)

<sup>5</sup> DFID Business case for the MNCH2 programme (2014), citing the National Population Commission, Nigeria and UNICEF; 2011 MICS survey (preliminary unpublished data) –

<sup>6</sup> OPM (2017) 'ORIE Qualitative Endline Report – final report', Oxford: ORIE.

<sup>7</sup> *ibid*

<sup>8</sup> OPM (2017) 'ORIE Gender Synthesis Report', Oxford: ORIE.

<sup>9</sup> Visram, A. *et al.* (2014) 'ORIE Nigeria: Quantitative Impact Evaluation. Baseline Report', Oxford: ORIE, [www.cmamforum.org/Pool/Resources/ORIE-quantitative-full-baseline-report-Nigeria2014.pdf](http://www.cmamforum.org/Pool/Resources/ORIE-quantitative-full-baseline-report-Nigeria2014.pdf).

<sup>10</sup> Omilola, B. (2010) 'Patterns and trends of child and maternal nutrition inequalities in Nigeria', IFPRI discussion paper 00968, Abuja: IFPRI.

<sup>11</sup> Ajjeroh, V. (2009) 'A quantitative analysis of determinants of child and maternal malnutrition in Nigeria' (Nigeria Strategy Support Program Background Paper 10), Abuja: IFPRI.

## Staggered implementation of the WINNN programme

Another important consideration is the staggered roll-out of the WINNN-supported interventions; while Output 1 (micronutrient supplementation) commenced in all four states by early 2013, outputs 2 and 3 (IYCF interventions and the CMAM programme) commenced in late 2013 and 2014 respectively.

The staggered roll-out reflected the complexities of implementing interventions through a fragmented health system, and the need to ensure government ownership, commitment and capacity building. Due to this staggered roll-out, the treatment areas were not exposed to the full package of WINNN interventions until early 2014 (8–10 months after the baseline survey), giving less time for the programme to show an effect on outcome and impact indicators.

To implement the interventions across selected LGAs, WINNN's primary approach was to work through selected health facilities, combined with community outreach activities. At the start of the programme, WINNN focused its community-based IYCF (c-IYCF) component of the IYCF interventions around selected health facilities, 15 per LGA, and with three support groups attached to each. Only in late 2015 was the c-IYCF component expanded to cover additional wards and communities. While the Business Case intended WINNN's interventions to reach three LGAs per state, in practice the c-IYCF model was implemented in 10 communities per ward.<sup>12</sup> In effect, the c-IYCF component only covered a portion of the communities in the target LGAs,<sup>13</sup> thus clustering implementation.

As the impact evaluation was designed to measure impact at the level of the LGA, the evolution of the WINNN implementation model to a more focused and clustered approach may have led to the dilution of programme impact at the LGA level.

## Timeframe for evaluation

Due to the later contracting of ORIE, the quantitative evaluation only covers three years (2013–2016) of the six-year WINNN programme (2011–2017). ORIE was contracted late in 2012 and implemented the baseline survey in June 2013. To enable the dissemination of findings and their use for decision-making before the WINNN project closes in August 2017, the endline was conducted in June 2016. As many nutritional indicators are sensitive to the season, it was necessary to conduct the endline in the same month as the baseline to control for any seasonal effects.

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<sup>12</sup> WINNN (2015) 'WINNN Behaviour Change Communication Strategy', Abuja, Nigeria: Federal Government of Nigeria.

<sup>13</sup> Due to a lack of data on the number of communities in each ward, WINNN has not estimated the overall proportion covered.

## Key conclusions

In light of the contextual considerations outlined above, this section brings together key conclusions, recommendations and lessons that emerge from this evaluation for each component of the WINNN programme.

### IYCF counselling, knowledge and practices

**Overall, WINNN monitoring data indicate that over half a million women were reached by the IYCF interventions** across the five focal states in treatment areas during the four years of its implementation. The WINNN-supported IYCF counselling focused on c-IYCF counselling (provided by CVs) and facility-based IYCF (f-IYCF) counselling delivered during postnatal care (PNC) and ANC sessions and on CMAM days at WINNN-supported health facilities.

**These numbers are reflected in the significant increases in the proportion of mothers of children under age three who received IYCF counselling in the community across WINNN treatment LGAs, which are attributable to the programme.** On average, mothers in treatment areas at endline were significantly more likely to have received any type of IYCF counselling, both c-IYCF and f-IYCF counselling, compared to control areas by more than 20 percentage points.

**WINNN also significantly improved knowledge on some IYCF practices in mothers in treatment LGAs.** Key knowledge indicators were assessed at baseline and endline and the evaluation finds a significant impact of WINNN on the proportion of mothers who recognised that water should not be given to infants under six months (20% at endline in treatment areas compared to 7% in controls). In addition, knowledge about non-standard feeding times, exclusive breastfeeding (EBF) and about early initiation breastfeeding was significantly higher in treatment areas than in control areas at endline.

**Despite these gains, there remains a large population still to be reached** as only 19% of mothers in treatment areas agree with the message that water should not be given to infants under six months who are being breastfed. Similarly, less than half (45%) report that breastfeeding should start immediately after birth, i.e. without delay.

**The evaluation finds robust evidence that WINNN significantly increased early initiation of breastfeeding (within 24 hours) among children in WINNN LGAs by about nine percentage points.** Analysis at endline shows that early initiation to breastfeeding (within 24 hours) was higher in treatment areas (83%) than in control areas (73%). There was also some improvement in terms of EBF (children aged 0–5 months) in WINNN LGAs that could be a consequence of IYCF counselling. WINNN did not have an impact on other complementary feeding indicators such as minimum dietary diversity (foods from four or more groups), which is likely due to the late start of food demonstrations and emphasis on messages relating to early initiation, EBF and personal hygiene and sanitation. Improvement of complementary feeding indicators also requires mothers to overcome financial barriers, thus making them particularly difficult to change.

**Despite WINNN's achievements in improved IYCF knowledge and practice, less than half of all mothers in treatment areas at endline (42%) had ever received IYCF counselling at ANC sessions, only one-third (32%) had attended IYCF counselling in the community, and only one-fifth (20%) had received IYCF counselling at PNC sessions.** Additionally, only 20% of mothers had attended a counselling session at both the community and the health facility. This

shows that there is a significant challenge ahead as a large portion of the population remains to be reached.

**The ORIE qualitative research also revealed that even when mothers were exposed to IYCF counselling directly, and had improved knowledge about good IYCF practices, there were challenges with regard to translating knowledge into practice.** For example, even though many mothers who were interviewed did know the benefits of exclusive breastfeeding for six months, many also reported that they felt that not giving any water to infants on hot days was too much of a risk to take. The power dynamics within households, in particular the relatively weak position of young, often poorly educated, adolescent mothers vis-à-vis their mother-in-law, prevented the uptake of some of the IYCF practices, with the qualitative evaluation finding that many mothers-in-law are resistant to change. Autonomous decision-making by mothers is often restricted by conservative community norms, which may contribute to a failure to implement favourable nutritional practice. Generally, messages around early breastfeeding were more accepted than the ones around EBF, which is also reflected in the quantitative data.

## Access to treatment at CMAM facilities

**The WINNN-supported CMAM programme treated more than 200,000 SAM patients over five years across the five WINNN-supported states.** WINNN's CMAM implementation model focused on CMAM days for outpatient therapeutic feeding with ready-to-use therapeutic food in primary health care (PHC) facilities, and treatment at stabilisation care facilities for severe cases of undernutrition. The role of CVs was to support CMAM programme activities at PHC sites, track defaulters and community sensitisation on CMAM-related services (i.e. community outreach).

**In treatment areas, the endline survey indicates that 18% of children aged 6–35 months with SAM had ever accessed treatment at CMAM facilities,** compared to only 11% in control areas. While this is not an estimate of CMAM programme coverage, it is indicative of the low proportion of children with SAM who actually reached treatment.

## Maternal, Newborn and Child Health Week (MNCHW) events – awareness and attendance

WINNN supported the implementation of MNCHW events via a variety of channels, which included assistance with the procurement of commodities, coordination and planning support at state and LGA level, and social mobilisation for MNCHW events. MNCHW events are state-wide interventions that are also implemented in control areas, although WINNN undertook additional mobilisation efforts in treatment areas. The evaluation therefore assessed mothers' awareness of and attendance at the MNCHW event in the areas surveyed, as well as the outcomes of increased social mobilisation efforts in the WINNN focal LGAs. Because at baseline MNCHW events had not yet started in Kebbi, impact estimates for these indicators were based on data from Katsina, Jigawa and Zamfara only.

**The evaluation findings indicate there has been a significant increase in the awareness among mothers of MNCHW events in both treatment and control areas.** As MNCHW events are state-wide interventions, an increase in awareness in both treatment and control areas is interpreted to be a positive result of WINNN's effort.

**A similar trend is found for attendance at MNCHW events, with a general increase in mothers attending between baseline and endline in both treatment and control areas.** In this

context of improved awareness and increased attendance in all evaluation areas, **the endline survey finds significantly higher attendance at MNCHW events in treatment areas (15%) compared to controls (8%), which is largely due to WINNN’s social mobilisation efforts in focal LGAs.**

Despite these positive trends, the endline survey reveals that only 10% of mothers in treatment areas reported attending the most recent MNCHW event. However, it should be underlined that this indicator is very difficult to capture, especially given MNCHW events were not strongly branded. As such, these findings are likely underestimated and should therefore be interpreted with caution. As MNCHW events are the only source of Vitamin A in WINNN states, it may be the case that the Vitamin A coverage indicator may be a good proxy for MNCHW event attendance. That said, even if we considered Vitamin A coverage to be a suitable proxy and upper bound for MNCHW event attendance, the conclusions we would draw remain the same – there is undoubtedly a large portion of the target population that remains to be served.

## Vitamin A intake

**WINNN monitoring data suggest that it has reached a 9,232,400 children with Vitamin A by the end of the fifth year of implementation.** WINNN supported the distribution of Vitamin A primarily at MNCHW events.

**WINNN positively and significantly affected the proportion of children who received Vitamin A in treatment areas.** In treatment LGAs, WINNN positively affected the proportion of children (aged 6–35 months) who received Vitamin A drops in the six months preceding the survey at endline by over 15 percentage points. At endline, nearly 30% of children aged 6–35 months had received Vitamin A in the last six months compared to 18% in control areas.

**WINNN counteracted a general negative trend in the proportion of children receiving Vitamin A since the baseline.** ORIE survey data show that there was an overall decrease in the proportion of children who received Vitamin A drops in the areas surveyed. The overall decrease is consistent with estimates published in other regional surveys such as the Nigeria Demographic and Health Survey (NDHS), the NNHS and the Multiple Indicator Cluster Survey (MICS). While the reason for this decline between 2011 and 2016 cannot be inferred from the data collected in this evaluation, it has been suggested that this could be due to a decrease in the intensity of the door-to-door polio campaign in this period. WINNN helped counteract this effect in its focal LGAs, probably by increasing attendance at MNCHW events.

## Child undernutrition

**Various surveys, including ORIE but also national surveys like the NDHS and NNHS, show that child undernutrition continues to be a severe public health issue in northern Nigeria.** The prevalence of child undernutrition, as measured by the proportion of children who are stunted, wasted (acutely malnourished), severely wasted (severely acutely malnourished) or underweight, across northern Nigeria remains very high. Recent publications, such as the NNHS of 2015, have shown that across North West Nigeria about one in 10 children (aged 6–59 months) is acutely malnourished, about 3% are severely acutely malnourished, about one-third (aged 0–59 months) is underweight, and over half (aged 0–59 months) is stunted. Efforts to reduce child undernutrition therefore remain very important.

**In areas surveyed for this evaluation, at endline, child undernutrition in treatment and control LGAs remained at high levels.** Among children aged 6–35 months (i.e. a different population to the figures presented above) at baseline about half (50%) were stunted, over one-third (38%) were underweight, about 17% were acutely malnourished and about 6% were severely malnourished. Indeed, the results of this quantitative impact evaluation reveal no significant improvement in anthropometric indicators as a result of the WINNN programme.

**The determinants of undernutrition are complex and multi-determinant and it is not surprising that the WINNN interventions alone did not improve anthropometric indicators.** Achieving a significant improvement in population-level anthropometric indicators is difficult and requires a complementary set of interventions that are delivered with sufficient intensity and coverage. The nutrition-specific interventions in the WINNN programme were not accompanied by a suitable range of nutrition-sensitive interventions. It is also questionable as to whether we would have been expected to see a significant change in anthropometric indicators during the three-year duration of the evaluation.

## Adolescent mothers

**Adolescent mothers (aged 15–19 years) in treatment areas were at a considerable disadvantage in regard to accessing and benefiting from WINNN services compared to older mothers.** We found that this was the case across a range of services. For example, adolescent mothers in treatment areas were significantly less likely to attend IYCF counselling in the community at endline (22% compared to 39% among mothers aged 35 years or more) and their children were significantly less likely to ever have been screened for undernutrition using mid-upper arm circumference (MUAC) (5% compared to 21% among children whose mothers were 35 years old or more).

**Children of adolescent mothers (aged 15–19 years) in treatment areas were also less likely to benefit from improved breastfeeding practices and less likely to have received Vitamin A drops in the six months preceding the survey.** For example, about 18% of children (aged 6–35 months) with adolescent mothers in treatment areas at endline received Vitamin A in the six months preceding the survey, compared to 33% with mothers aged 35 years old or more. Similarly, about 6% of children (aged 0–5 months) with adolescent mothers were exclusively breastfed, compared to 23% of children with mothers aged 20–24 years. Results from qualitative research indicate that internal power dynamics within households that are skewed against young and adolescent mothers were partly responsible for this, an issue recognised by WINNN. The contribution of low levels of education and conservative social norms toward young mothers appear to be crucial constraints on achieving nutritional change.

## Differences across states

**Differences in implementation timelines and modalities across WINNN states have led to significant differences in terms of key indicators assessed in this evaluation.** Together with evidence from the qualitative research implemented within the context of ORIE, the following key findings can be highlighted.

In **Katsina and Jigawa**, this survey found comparatively high levels of c-IYCF counselling attendance, higher levels of MNCHW event attendance, and higher levels of IYCF knowledge among mothers (aged 15–49 years) in treatment areas, compared to similar treatment areas in Zamfara and Kebbi. The qualitative research confirmed that community IYCF counselling was

strong in Katsina and Jigawa, in particular because of strong supervision and highly motivated CVs.

In **Kebbi**, this survey found comparatively low levels of IYCF counselling attendance among mothers (aged 15–49 years), significantly lower levels of MUAC screening among children (aged 0–35 months), and a significantly lower proportion of mothers who had attended the last MNCHW event than in Jigawa and Katsina. This translated into significantly lower levels of knowledge of appropriate breastfeeding practices among mothers and in lower programme effects on Vitamin A intake among children (aged 6–35 months) than in other states. Partly, this could be explained by the later implementation of some components of WINNN in Kebbi compared to other states and the late commencement of MNCHW events.

In **Zamfara**, we found lower levels of IYCF counselling attendance and MNCHW event attendance among mothers (aged 15–49) in treatment areas compared to Jigawa and Katsina, but similar levels of MUAC screening among children (aged 0–35 months). Breastfeeding knowledge among mothers (aged 15–49 years) in treatment LGAs and programme effects on Vitamin A uptake and IYCF knowledge were similar to those seen in Jigawa and Katsina.

## Key lessons and recommendations

The key conclusions presented above provide an overview of the findings that emerge from this evaluation along the results chain of the WINNN programme. While the impact evaluation showed no impact on anthropometric indicators, there is positive evidence of impact on a limited number of intermediate outcomes such as IYCF knowledge and practice, awareness of and attendance at MNCHW events and coverage of Vitamin A supplementation.

The principle objective of this quantitative impact evaluation was to assess impact, not to develop detailed operational recommendations. ORIE has produced a separate document – the ORIE Final Integrated Report – which draws on evidence from across ORIE workstreams to fully draw out lessons learned and recommendations targeted toward specific stakeholder groups such as the Nigerian government, donors and programme implementers. The Integrated Report also draws on evidence from across ORIE workstreams to report on WINNN’s logframe indicators.

However, a number of important lessons and recommendations do emerge from the quantitative impact evaluation and are outlined below.

### Lessons

- 1) The WINNN programme has tested and applied models of implementing nutrition-specific interventions within a weak and fractured health system and demonstrated that it is possible to make significant improvements in service delivery and in some intermediate outcome indicators through focused and coordinated efforts.
- 2) However, the scale of resources allocated, though large, was not sufficient to provide comprehensive coverage in the focal LGAs. It is understood that WINNN was meant to be a demonstration project, and therefore the anticipated scale of change in key impact and outcome indicators may have been ambitious given the resources available, the complexity of the context of implementation and the challenges of securing scale-up by government.
- 3) Given the challenges surrounding high-quality data in northern Nigeria, it is important to go beyond using absolute population targets in the design and monitoring of programmes. Monitoring programmes using population coverage indicators are essential to tracking the progress of implementation, identifying bottlenecks and setting expectations of achievement.
- 4) Given the various determinants of undernutrition and the challenging context of northern Nigeria, it is important that the package of nutrition-specific WINNN interventions is complemented with nutrition-sensitive interventions to address the wider set of determinants of undernutrition.
- 5) The quantitative impact evaluation of the WINNN programme was constrained to assessing impact at the level of the LGA, which imposed limitations on its ability to flexibly assess the adapting of operational models in selected communities within these LGAs. A further constraint was the mismatch between the implementation timeline and that of the evaluation. Coordinating timelines between implementation and evaluation is critical to ensuring the evaluation is not unduly limited in the evidence it is able to collect.

## Recommendations

- 1) Improving the access of young, adolescent and less educated mothers to nutrition interventions needs focused interventions toward those mothers who have low levels of autonomous decision-making regarding the nutrition of their child. This will require novel community-based action and supported change.
- 2) There are significant cultural barriers in turning increased knowledge into improved practice – particularly for EBF and mothers’ fears of not giving water to the infant. Additional research to further develop approaches to addressing these barriers will be required to see significant improvements in these IYCF practices.
- 3) WINNN’s approach to intensive social mobilisation in focal LGAs has led to significant improvements in awareness and attendance at MNCHW events. This social mobilisation has also led to WINNN counteracting a general decline in the coverage of Vitamin A supplementation. However, the extent to which this intensive social mobilisation can achieve results at scale should be considered carefully in light of health system and human resource constraints in northern Nigeria.
- 4) If state governments judge that universal treatment for SAM at CMAM facilities is a priority and affordable, they will need to strengthen active case finding for CMAM to improve coverage of the CMAM intervention among the at-risk population of children. Additionally, the feasibility of such an intensive ‘vertical’ CMAM model must be considered carefully given the limited human resources available and cost of this intervention. Alternative models must be explored that more closely integrate treatment into everyday routine PHC services and make less of a time demand on health workers. This could also include adding complementary approaches to managing moderate acute malnutrition.
- 5) The decline in Vitamin A supplementation coverage across northern Nigeria is worrying and warrants further investigation. While the quantitative data do not allow us to determine the reason for this negative trend, it is clear new strategies to increase Vitamin A supplementation to their former levels are an important priority. Alternatively, if this trend is an artefact of the Vitamin A monitoring methodology, new measurement strategies must be developed as this trend also appears in other population-based surveys.
- 6) The effectiveness of community-based strategies to mobilise and distribute essential interventions such as Vitamin A must not be underestimated. This is particularly important if the decline in coverage of Vitamin A is driven by a shift in distribution from door-to-door via the polio campaign to health facility-based at MNCHW events. Community-based strategies, through paid community health workers for example, can be remarkably effective at reaching remote and under-served communities, particularly in a society in which conservative and gendered social norms and practices prevail.