IMPACT EVALUATION

WFP's Moderate Acute Malnutrition Treatment and Prevention Programmes in Kassala Sudan

Summary Evaluation Report

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Executive Summary

1.   This impact evaluation was commissioned by the World Food Programme's (WFP) Office of Evaluation as part of a wider series. Four of the evaluations look at the impact of WFP programmes on nutrition and food security in the Sahel. WFP has a number of on-going interventions to prevent and address moderate acute malnutrition (MAM) in Sudan. This evaluation specifically looks at the relationship between MAM treatment and prevention, and is timed to inform the 2017 WFP Interim Country Strategic Plan and the 2018 revision of the Sudan National Nutrition Strategic Plan.

2.   Undernutrition remains a serious health and socio-economic issue in Sudan. Greater political commitment in the last decade has resulted in a more integrated approach to nutrition programming, and WFP has recently tested different prevention initiatives in Sudan, in addition to its existing treatment programme for MAM. Although the interaction of treatment and prevention is crucial, questions persist at the local and global level regarding the real impact of prevention programmes, and the most effective intervention design.

3.   This evaluation assessed the effectiveness of the ongoing WFP food-based prevention of moderate acute malnutrition programme, the blanket supplementary feeding programme (BSFP), when added to the targeted supplementary feeding programme (TSFP) as a package intervention.

4.   The key indicators measured were:

- Prevalence of moderate acute malnutrition (MAM), severe acute malnutrition (SAM), global acute malnutrition (GAM), and those "at risk of malnutrition" in children and pregnant and lactating women

- Incidence of moderate, severe, and global acute malnutrition in children

- Coverage and performance of the treatment and prevention programmes

5.   Mixed methods were used to answer specific research questions along a theory of change pathway:

- A stepped wedge cluster control trial assessed prevalence

- A nested, two-arm study evaluated incidence

- A qualitative sub-study, employing key informant interviews, investigated coverage and performance of the targeted supplementary feeding and food-based prevention programmes, and also the impact of social and behaviour change communication.

6.   The evaluation found that the addition of MAM prevention components to MAM treatment programmes had no effect on MAM/SAM incidence or prevalence. However a significant reduction (as much as 12 percent) in the number of children "at risk of malnutrition" was observed. A similar significant reduction (of up to 15 percent) was seen in the prevalence of pregnant and lactating women "at risk of malnutrition". The evaluation did not find any differences in programme outcomes between male and female beneficiaries. The absence of a direct effect could be explained by a time lag between the reduction of "at risk" and a decrease in prevalence, and by the very low coverage of the prevention programme. Also, discharged, recovering SAM cases may have contributed to the incidence of moderate acute malnutrition.

7.   Access to an intervention with better coverage and service delivery, and with effective community sensitisation could potentially demonstrate greater impact on the "at risk" population and therefore on the incidence and prevalence of moderate, severe, and global acute malnutrition.

8.   The evaluation identified three key points for consideration, with several linked areas of action.

9.   <u>Point 1</u>: Improve coverage of both treatment and prevention arms of this programme.

10.   <u>Point 2</u>: Review social and behaviour change communication (SBCC) actions for target communities, as well as the opportunity costs linked to participation in this set of interventions.

11.   <u>Point 3</u>: Wherever possible, future food-based prevention programmes run by the World Food Programme and other actors should maximize learning outputs through the inclusion of an operational research component at design stage, and/or a strong evaluation design. This research should also be linked to other evaluations/data on intervention coverage and programme costs.

Introduction

12.   Acute malnutrition is one of the key drivers of child mortality in the developing world. A child with moderate acute malnutrition (MAM) is estimated to have a three- to four-fold increased risk of dying compared to a well-nourished child, while those with severe acute malnutrition (SAM) have a nine-fold increased mortality risk.[1] Despite the large global caseload for MAM and evidence of effectiveness in optimal conditions, MAM treatment continues to have a low profile for many reasons highlighted in a recent international review of MAM management.[2] The reasons included: a lack of consensus on key criteria, definitions, and treatment protocol; the high cost of products; low coverage, and knowledge gaps regarding the benefit of counselling with or without food products; and insufficient evidence of impact in crisis conditions, especially when MAM treatment and prevention are combined. The nature of treatment and prevention interventions differs, but their interaction appears crucial, as there is a risk of recovering MAM cases reverting to MAM in the absence of prevention. Thus, there is a need to answer questions regarding impact and the most effective design of MAM programmes. This evaluation examines the impact of food-based prevention of moderate acute malnutrition (FBMAM) alongside a targeted supplementary feeding programme (TSFP) on the prevalence and incidence of MAM, SAM and global acute malnutrition (GAM) in Sudan.

Country context

13.   Undernutrition in Sudan is not only a serious socio-economic and health problem, but also one of the least addressed ones. Out of 213 localities assessed in the 2013 Sudan National Nutrition Survey, 151 had a prevalence of GAM above 10 percent, and 72 localities had a prevalence exceeding the international 'emergency' threshold of 15 percent.[3] Kassala state, located in the eastern part of Sudan, was chosen as the

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[1] Black, R.E. et al., 2008. *Maternal and child undernutrition: global and regional exposures and health consequences.* The Lancet, 371(9608), pp.243–260.; Wirth, J.P. et al., 2016. Assessment of the WHO Stunting Framework using Ethiopia as a case study. *Maternal & child nutrition*, pp.1–16.
[2] Annan, R.A., Webb, P. & Brown, R., 2014. *Management of Moderate Acute Malnutrition (MAM): Current Knowledge and Practice.*
[3] Sudan National S3M, 2013. *Report of a Simple Spatial Surveying Method (S3M) survey in Sudan*, Sudan Federal Ministry of Health.

study site based on the WFP community-based nutrition integrated programme (CNIP) roll out plan. This state has long suffered chronic poverty, and has acute undernutrition rates among the highest in Sudan, ranging from 15 percent to 19 percent over the past ten years.4 These levels of acute undernutrition are associated with high food insecurity, due to inadequate crop harvests, inadequate infrastructure, poor distribution of qualified human resources, and cultural practices that undermine the nutritional status of children and women.5 Large influxes of internally displaced peoples, and conflict and famine-induced refugees, primarily from Eritrea and Ethiopia, have put additional pressure on Sudan's fragile resource base.6

14.   Recent years have seen greater political commitment to integrated nutrition programming, with a range of guidelines and protocols developed for the Sudanese National Nutrition Strategic Plan 2014-20187 to promote MAM treatment and prevention.

Timeline

15.   Data for this evaluation were collected over a period of nine months, during which a staged roll out of the MAM prevention programme at two month intervals was used, implying four rounds of data collection with one measurement at each round. Due to time constraints, no baseline measurement was undertaken. However, given certain assumptions about the programme cycle and effects, intra-cluster control is still possible. However, any "before" and "after" differences observed in the study will not be able to account for the differences that existed between control and intervention groups prior to programme initiation. To account for delays in the initiation of different MAM prevention programme components (i.e. FBMAM, home fortification (HF), SBCC), 'intervention' was defined as 'at least FBMAM with the possible addition of home fortification and/or SBCC' for two months or longer. Control was defined as 'MAM treatment/TSFP only'.

Summary of intervention, theory of change, and Implementation

Description of WFP intervention

16.   The World Food Programme is the largest humanitarian actor in the country, working closely with the Sudan Federal Ministry of Health and other partners to implement a range of nutrition sensitive and nutrition specific interventions through the CNIP that are designed to address key causes of acute malnutrition. Although MAM treatment has been its primary focus, WFP Sudan has recently tested a number of preventative interventions yielding varying results. WFP MAM treatment and prevention programmes are implemented within the broader framework of the CNIP and linked to other nutrition specific and nutrition sensitive interventions, including SAM treatment, infant and young children feeding (IYCF), resilience, livelihoods, and water, sanitation and hygiene (WASH)8. MAM treatment and prevention programmes

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4Acharya, P. & Kenefick, E., 2012. *Improving blanket supplementary feeding programme (BSFP) efficiency in Sudan*. Field Exchange, (42), pp.1–7.
5 World Food Programme, 2012a. *A Comprehensive Food Security Assessment in Kassala State, Sudan*, Kassala: World Food Programme.
6 Same as above citation
7 (i)Jimenez, M. & Stone-Jimenez, M., 2014. *Preventing moderate acute malnutrition (MAM) through nutrition-specific interventions;*
(ii)Sudan Federal Ministry of Health, 2014; (iii) National Nutrition Strategic Plan 2014-2018, Khartoum: Sudan Federal Ministry of Health; (iv) Sudan Federal Ministry of Health, 2013. *The Republic of Sudan National Health Sector Strategic Plan II (2012-2016)*, Khartoum: Sudan Federal Ministry of Health.
8 Community ownership and empowerment is central to CNIP. Programme components are designed according to a community-based participatory planning (CBPP) approach, entailing a consultative process, during which communities, WFP cooperating

are delivered through a mixture of government and international and national non-governmental organisation (NGO) partners. This evaluation was timed to inform the 2017 WFP Interim Country Strategic Plan, and the 2018 revision of the Sudan National Nutrition Strategic Plan. The targeted supplementary food programme (TSFP) targets: (i) children aged 6-59 months with a mid-upper arm circumference (MUAC) ≥115mm but <125 mm, and with no oedema; and (ii) pregnant and lactating women with a MUAC ≥185 mm and <210 mm, with the objective of preventing: morbidity associated with MAM; the development of SAM; and the improvement of maternal nutritional status. The blanket food-based prevention of moderate acute malnutrition (FBMAM) component distributes specialized nutritious foods (SNF) in localities where the GAM rate is above 20 percent to children aged 6-23 months, and to pregnant and lactating women. The targeted FBMAM component distributes specialized nutritious foods to localities where the GAM rate is less than 20 percent. Table 1 presents the programme components and descriptions, along with the associated eligibility criteria.

Table 1: Programme components

Programme components	Description	Admission / eligibility criteria
Targeted supplementary feeding programme (TSFP)	Provision of specialised nutritious foods (SNF-1000kcal/d) to those meeting MAM criteria	• Children 6-59 months with a mid-upper arm circumference (MUAC) ≥ 115 mm but <125 mm, and with no oedema • Children discharged from an outpatient therapeutic programme for SAM treatment • Pregnant (2nd or 3rd semester) and lactating women (with infant <6 months) with MUAC ≥185 mm and < 210 mm
Food-based prevention of MAM (FBMAM)	Targeted distribution of SNF (500 Kcal/day) in localities with GAM rate of <20% (blanket if GAM >20%), to those considered "at risk" of MAM	• Children 6-23 months with MUAC ≥125 mm and <135 mm and with no oedema[9] • Pregnant and lactating women with MUAC ≥210 mm and <230 mm
Home fortification (HF)	Distributions of single dose 1g micronutrient powders (15 sachets per month)	All children 6-59 months with MUAC > 13.5mm not eligible for TSFP or FBMAM and with no oedema

partners and local government staff discuss and agree priority activities required to build food and nutrition security, address vulnerabilities and enhance community resilience.

[9] This category of children has been defined as "at-risk", as they are the age group that is most susceptible to acute malnutrition (under 2 years old or the first 1000 days of life) and have MUAC close to the MUAC cut-offs for MAM.

Social and behaviour change communication (SBCC)	Delivery of messages using standard WFP materials for health, IYCF and WASH. Cooperating partners were trained on message content and delivery.	The broad target group was mothers with children under 5 years, PLW and key influencers.

Theory of change

17.　The CNIP's theory of change,10 based upon the UNICEF conceptual framework of the causes of undernutrition,11 is presented in Figure 1. The FBMAM aims to provide nutrient-dense food supplements to children who are considered greatly "at risk", that is, younger children (less than 24 months old) with a middle-upper arm circumference (MUAC) between 125 mm and less than 135 mm (cause 1). Other complementary interventions, such as the SBCC, aim to address inadequate/inappropriate knowledge and discriminatory attitudes that limit household access to actual resources (cause 2). Changes brought about by the programme in relation to causes 1 and 2 are thought to act on a specific pathway through this framework, leading to the primary outcome of a decrease in child undernutrition and, in the case of the programme, in acute undernutrition.

18.　The underlying assumptions of the MAM components of the CNIP are: (i) that targeted MAM prevention, aligned with the 'window of opportunity,'12 "can mitigate the increase in MAM and the associated risks related to mortality, morbidity and overall child development";13 and (ii) that a participatory approach, involving community consultation, sensitisation and mobilisation throughout the programme cycle will improve coverage and the resulting impact of MAM prevention and treatment programming.14

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10 A theory of change document is still being developed by WFP. Therefore these figures have been established based on the CNIP field guide (*Community-based Nutrition Integrated Programme (CNIP); A field Guide for Sudan*. Version: 02.06.2015. World Food Programme), and discussions with the WFP team.
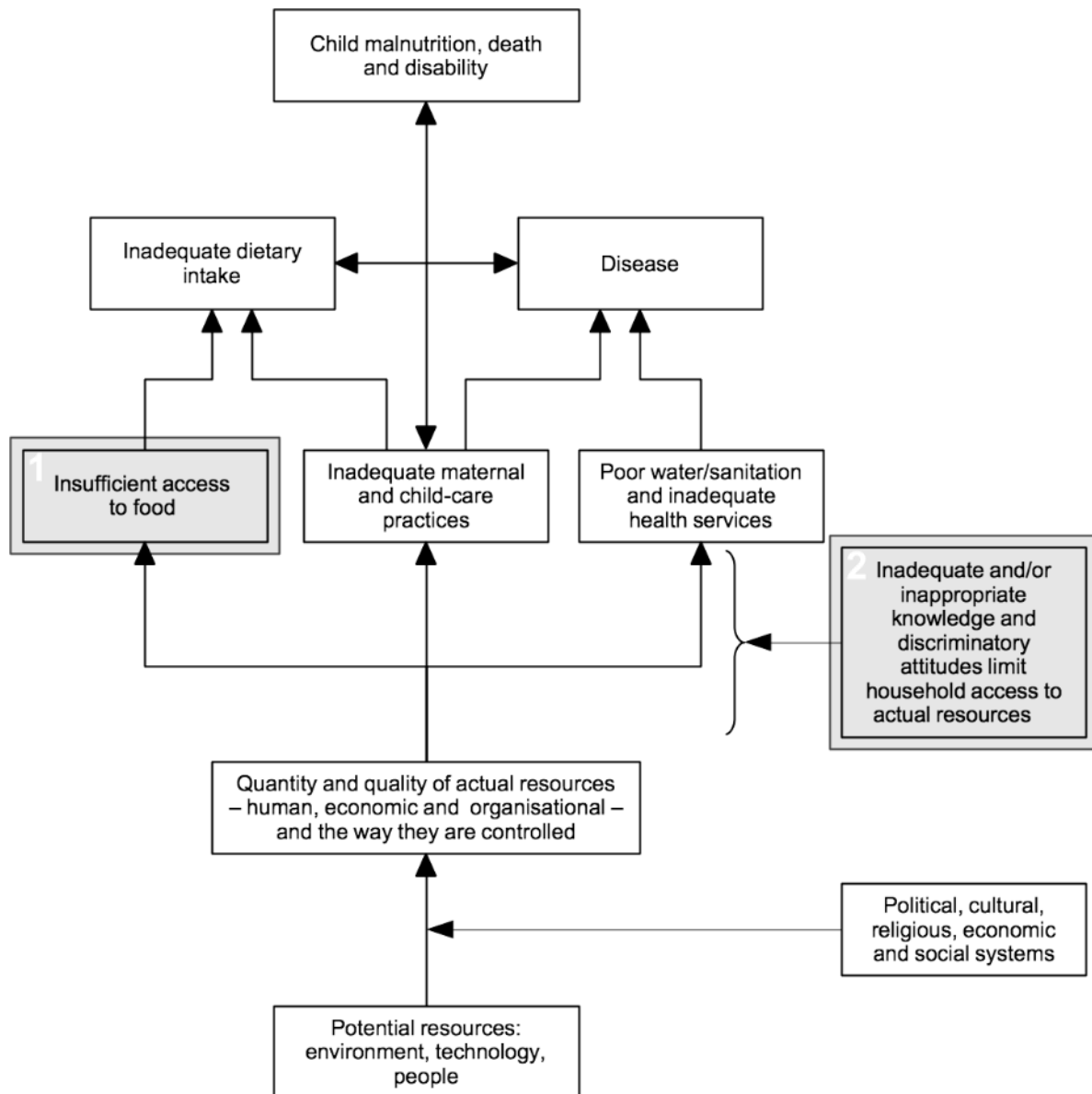11 United Nations Children's Fund, 1997. *The State of the World's Children 1997*, Oxford: Oxford University Press
12 Defined as the first 1000 days from conception to a child's second year of life.
13 World Food Programme, 2015. *Community-based Nutrition Integrated Programme (CNIP)* 2nd ed., World Food Programme.
14 Same citation as above.

Figure 1. Theory of change

Child malnutrition, death and disability

Inadequate dietary intake ↔ Disease

1 Insufficient access to food

Inadequate maternal and child-care practices

Poor water/sanitation and inadequate health services

2 Inadequate and/or inappropriate knowledge and discriminatory attitudes limit household access to actual resources

Quantity and quality of actual resources – human, economic and organisational – and the way they are controlled

Political, cultural, religious, economic and social systems

Potential resources: environment, technology, people

Evaluation question

19.   The key research question for the impact evaluation is:

- What is the impact on the incidence and prevalence of MAM and SAM in children under 5 years, and for pregnant and lactating women, of different MAM treatment and prevention interventions in Sudan?

Evaluation Design, Methods and Implementation

20.   The primary research hypothesis of this impact evaluation is as follows:

- The implementation of FBMAM, targeted at children 6-23 months and pregnant and lactating women, including SBCC components to improve IYCF and WASH behaviour in parallel with MAM and SAM treatment programmes, significantly lowers the incidence and prevalence of MAM in children under five years and in pregnant and lactating women over the course of the programme.

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21.   MAM is the focus of the WFP prevention and treatment interventions, but it cannot be evaluated in isolation. MAM and SAM programmes run alongside and feed into each other. Although MAM is the major component, SAM also contributes to GAM. GAM in turn measures the severity and overall nutritional status of children, and is a key indicator in national nutrition surveys identifying problem localities. The primary outcomes and impacts of interest for this impact evaluation were therefore GAM, SAM and MAM prevalence and incidence, along with "at-risk" prevalence.

22.   The study was conducted across six localities in Kassala state, eastern Sudan, which has had some of the highest rates of acute undernutrition in Sudan. The study design used variation in the timing of introduction of MAM prevention components (such as food based prevention, behaviour change communication, and home fortification), to localities (clusters) where treatment activities were underway. Thus, a stepped wedge cluster controlled trial design was employed across all localities, allowing for intra-cluster controlled comparison (horizontal comparison), wherein each cluster was compared to itself at the start of the study, and at each successive step at two month intervals. The design allowed inter-cluster controlled comparison (vertical comparison) between a number of clusters, with each cluster serving as a control at varying stages of the evaluation study. Both horizontal and vertical analyses provided the necessary information to model the effects of time on the effectiveness of the MAM prevention package(s), in terms of both when the intervention started and how long it was ongoing.

23.   MUAC tape was used as the measurement tool to assess children and pregnant and lactating women. Once eligibility for programme participation had been established, a questionnaire was administered to mothers/care-givers of children and pregnant and lactating women. Mothers/care-givers of children covered by the programme answered standardised questions on knowledge, attitudes, and practices. Mothers/care-givers of children eligible for, but not covered by, the programme answered questions covering reasons for not being in the programme, programme-history of the child, and programme awareness.

24.   Due to programme considerations, a non-randomised rollout of FBMAM was staged alongside an existing TSFP across the six localities. Over the course of the study, localities switched from control (exposure to the TSFP only), to intervention (exposure to the TSFP and FBMAM with the possible addition of home fortification and/or SBCC) at roughly two month intervals. A two-stage spatial sampling design was used to select data collection villages at each of four rounds of data collection. A full enumeration of pregnant and lactating women and children under 5 eligible for prevention was conducted in each village, to ensure the overall sample size of 1,346 was met. In larger locations, systematic sampling was used to identify children under 5 and active and adaptive case-finding was used to identify pregnant and lactating women. A two-arm parallel design cluster controlled study was used to assess incidences of MAM. Practically, to allow for the nesting of the incidence study within the main stepped wedge trial, two localities were selected as the intervention arms that were the first to be exposed to FBMAM, and two localities that were the last to be exposed to prevention were used as the control arm. A sample of 1,372[15] children, aged six months to five years was identified. This cohort was then followed with four measurements over a five-month period; those who developed acute malnutrition (MAM or SAM), were recorded, referred to available treatment and discharged from

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[15] Sample size calculations proposed by Hayes and Bennett were applied (Hayes, R.J. & Bennett, S., 1999. Simple sample size calculation for cluster-randomized trials. *International Journal of Epidemiology*, 28(2), pp.319–326.)

the study. Comparisons between control and treatment groups were made using a two-sample z-test nested within a blocked weighted bootstrap resampling technique16 to be able to detect significant findings.

25.   A qualitative data collection and analysis was conducted between rounds three and four of the stepped wedge. It aimed to provide more nuanced and contextualised information related to the preliminary cross-sectional results obtained from the first three study rounds. The data was collected through key informant interviews, focus group discussions, semi-structured interviews, and documented case studies. Key informants at this level included parents of programme beneficiaries, pregnant and lactating women, volunteers, and health workers. Men and women were interviewed separately to allow both groups to speak freely. This activity was undertaken across four localities.

26.   The results of the qualitative investigation helped the research team to understand and contextualise the quantitative results. The qualitative investigation focused primarily on two key streams of enquiry: 1) it looked at more in-depth coverage of the various components of the prevention programme; and, 2) it collected additional information on the effects of the SBCC interventions, specifically on the mechanisms which change/do not change current practices relevant to children and women's nutrition.

Impact of Analysis of Results

Impact analysis

27.   No significant impact was observed on the prevalence of MAM, SAM, or GAM in children under five years, or in pregnant and lactating women at any point in the stepped wedge study. However, a significant reduction (of up to 12 percent), was seen in the prevalence of children "at risk of malnutrition" in rounds two, three and four of data collection, where FBMAM (food-based prevention of MAM) was added to the TSFP, the treatment component. A similar significant reduction (of up to 15 percent in round three of data collection), was seen in the prevalence of pregnant and lactating women "at risk of malnutrition".

28.   Decreases in GAM prevalence and incidence can only be effected if either SAM or MAM prevalence and incidence decrease via the pathway of recovered cases or deaths. Thus any decrease in SAM prevalence and incidence due to an improvement of cases to MAM, or any decrease in MAM prevalence and incidence due to a deterioration of MAM cases to SAM, would not change GAM prevalence and incidence to any significant or tangible degree. For the combined TSFP and FBMAM programmes to reduce GAM incidence and prevalence, the duration of MAM episodes should be as short or shorter than the duration of SAM episodes to be able to offset the recovery of SAM cases into MAM cases. Given this, it is very likely that the overall effectiveness of the programmes in stemming incidence and prevalence of MAM cases is not sufficient to reduce GAM incidence, particularly where there is recovery of SAM to MAM happening in the same vicinity. This could explain why incidence has not changed and why it does not appear to correlate with the level of inputs provided by the TSFP and FBMAM programmes. To further test this hypothesis empirically, the evaluation used routine programme data on admissions of MAM cases (from the TSFP), and admissions of SAM cases, along with the MAM and SAM prevalence

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16 A method developed based on standard bootstrapping approaches described by (Diaconis & Efron 1983)

estimates obtained from the study to calculate duration of MAM and SAM in the four study localities. The estimates show that for some of the localities, duration of MAM was much longer than SAM duration.

29. There was no discernible, nor statistically significant, difference between control (Kassala and Rural Kassala) and intervention (Arroma and Telkuk) clusters with regard to the incidence of acute malnutrition in the children under observation, and no recognisable pattern or trend in incidence.

30. The TSFP performance met Sphere standards with recovery rates for all beneficiaries at over 75 percent throughout the year across all localities, and defaulters at under 15 percent for most of the study period. There were limited data for the FBMAM programme due to the delays in rollout for some localities, making it difficult to assess performance, although data that was available suggested performance was generally good.

31. Coverage was adequate for the TSFP and tended to be highest at or near programme sites. For children, overall coverage ranged from 15-28 percent, while some localities reached 50 percent, but it was lower for pregnant and lactating women, where only one locality exceeded 30 percent. Coverage was very low for FBMAM at no more than 10 percent for children (and of a similar magnitude for pregnant and lactating women), even in localities with the longest period as intervention clusters. The qualitative investigation clearly identified the need for more effective, active and regular case finding of MAM and those "at risk". Although overall programme performance indicated good effectiveness and good case retention, the low level of beneficiaries revealed the programme was not responding adequately to actual need.

32. The qualitative analysis highlighted two further factors affecting coverage. Firstly, there were issues with record keeping and maintenance of case registers at health centres, making it difficult to track cases and to identify and trace defaulters. Secondly, the heavy workload of programme staff and community mobilisers in delivering both the TSFP and FBMAM limited their efforts in clinic-based activities.

33. The results of a comparison of control and intervention groups with regard to six key infant and young child feeding practices indicated that there had been no change in feeding behaviours and practices attributable to the behavioural intervention (SBCC). The short period of exposure and low coverage of SBCC activities could be important reasons for the absence of change. It is important to note that WFP Sudan was in the early stages of designing and implementing the SBCC intervention at this stage of the evaluation, thus limiting its potential effectiveness to key populations. Despite this, an interesting finding from this evaluation indicated that the most common barrier to participation in the programme was lack of time for participants, raising questions regarding the relevance of messages for target communities (and how they are delivered), as well as the opportunity costs linked to participation.

34. The quality of the FBMAM programme implementation could have been a key factor in ensuring the decrease in "at-risk" prevalence of MAM. Performance and coverage remained the main elements to consider as, at that point, the observed effect of a 12 percent reduction in the "at-risk" category, with no effect of MAM prevalence, was produced by a programme that achieved only about 10 percent coverage. Coverage for the home fortification component of the CNIP was so low during the study period (<10 percent), that it could not be expected to have contributed in any way to the results.

35.   A full cost effectiveness analysis was not possible due to data limitations and timing issues. Data on the TSFP from the two localities where these were available and more reliable, suggested a cost per beneficiary admitted and cost per beneficiary cured of USD 18 and USD 20 respectively. Whilst this was consistent with WFP estimates, the limited nature of data for the FBMAM prevented the comparison of cost effectiveness for treatment and prevention. As WFP and cooperating partners often undertake field activities related to MAM prevention that they do not fund, it was important for them to take initiative in separating cost information from their different donors throughout programmes.

Discussion

36.   The study results demonstrated that, in this context, the addition of a FBMAM programme onto a TSFP, as a package intervention for the treatment and prevention of MAM, decreased the prevalence of "at-risk" children but not of MAM, SAM, and GAM incidence or prevalence. No difference in outcomes was found between male and female beneficiaries. For pregnant and lactating women, a similar pattern of decreasing but non-statistically significant MAM prevalence over time was seen, along with a decreasing and statistically significant "at-risk" prevalence over time.

37.   The temporal trend of "at-risk" prevalence reduction showed a continuing decrease over time in the presence of the FBMAM programme. It is possible that, over a longer period of observation and exposure to the prevention programme, particularly if longer duration coincided with improving coverage, "at-risk" prevalence would have continued to decrease and eventually manifest in a reduction in MAM prevalence. Up to a 12 percent reduction was seen in "at-risk" prevalence by round four of the study, but with no effect on MAM prevalence and MAM incidence.

38.   Although it has not yet been possible to provide unequivocal evidence as to the most effective intervention modality, it is clear that delivery and quality of service are important issues. Implementation issues have often been linked to poor impact on programme objectives, and outcomes have not been a focus to date. In particular, the quality of the FBMAM programme implementation could be a key factor in ensuring that the decrease in "at-risk" prevalence observed in the study is improved. Currently, the observed effect of about a 12 percent reduction in the "at-risk" category, with no effect on MAM prevalence, is produced by a programme that is achieving only about 10 percent coverage at best, and in which many of the SBCC actions at community level have only recently been initiated. Increasing coverage could contribute significantly to a greater reduction in "at-risk" prevalence and incidence of MAM at population level, and subsequently lead to a decrease in MAM prevalence.

39.   Key issues that were noted during the qualitative investigation were: 1) a need for more effective case-finding of MAM and "at-risk" cases; 2) a need for improved record-keeping at the clinic level for admissions and defaulters; 3) community mobilisers are inundated by multiple tasks and roles that limit their ability to perform more community-orientated tasks, including community sensitisation, as part of SBCC interventions; and 4) linked to very low participation, a need to re-examine the relevance of the SBCC actions (and how they are delivered) for target communities, as well as the opportunity costs linked to participation in this set of interventions.

40.   Finally, the wider external application of this study's findings should take into consideration various contextual factors arising from the running of this programme in Kassala state in Sudan. The area has chronically high rates of acute and chronic malnutrition, a poor socio-economic situation, periodic crises linked to natural

disasters or insecurity, and presents operational challenges due to state and country level socio-political structures affecting supply chains, logistics, and finance systems. These considerations possibly make the results very specific to the context, with transitory food insecurity linked to seasonal or other fluctuating factors and to the setting, with a highly mature and evolved community-based targeted feeding programme.

Points for Consideration

41.   Based on the evaluation's findings and conclusions, three broad points for consideration have been developed, with specific areas for action identified, to improve both future food-based moderate acute malnutrition interventions and the implementation of linked evaluations.

42.   Point 1: Improve coverage of both treatment and prevention arms of this programme.

This leads to three key action items:

    i.   Improve effectiveness of case-finding and referral of incident cases to food based interventions through regular screening and links to community/household based activities.

    ii.   Improve effectiveness of community sensitization to the programme, of community understanding of malnutrition (and the programme's target groups), and of participation in SBCC activities. This can be achieved through supporting the community health workforce and spending more time at the village-level conducting in-house visits to sensitize families.

    iii.   Improve understanding of programme performance and the nutritional situation in target areas over time. Support to existing systems such as a rapid assessment methodology (used for the community nutrition surveillance system that was set up by UNICEF and the Ministry of Health in Darfur) can garner ample monitoring data by sampling as few as 200 children per locality twice a year.

This point is targeted towards the Sudan country office and perhaps the WFP regional office in order to encourage the immediate creation of complex and effective MAM-based preventative and treatment interventions for children under the age of 5, and for pregnant and lactating women.

43.   Point 2: Review SBCC actions for target communities as well as the opportunity costs linked to participation in this set of interventions.

The main action item identified is to review the delivery platforms of SBCC interventions with opportunity costs for participants in mind. Community consultation will be key to the identification and support of the most effective and practical delivery mechanisms. Programmes similar to SBCC have found that low participation is, in part, due to messages being perceived to be of little relevance to the target audience. Thus, a review of the design of the WFP SBCC interventions based on a context-specific causal analysis of undernutrition in target communities may improve perceived relevance and thus support heightened participation. This point also highlights the importance of strengthening the collection and reporting of monitoring data at programme sites so that the prevalence of malnutrition at community level can be more accurately followed.

This point is targeted towards the WFP country office, the regional bureau, and any international or national actors that wish to engage with nutrition-supportive interventions in contexts such as Sudan.

44. <u>Point 3</u>: Wherever possible, future food-based prevention programmes run by the World Food Programme and other actors should maximise learning outputs through the inclusion of an operational research component at design stage, and/or the inclusion of a strong evaluation design. This research should also be linked to other evaluations/data on intervention coverage and programme costs.

Two actions items are identified:

iv. Research and evaluation of FBMAM programmes should be implemented in different contexts and should address: 1) the length of exposure to both treatment and prevention programmes; 2) the effect of severe acute malnutrition (SAM) treatment performance and coverage on the nutrition impacts of FBMAM programmes; and 3) the link between intervention coverage and outcomes, such as incidence and prevalence of moderate acute malnutrition (MAM) and global acute malnutrition (GAM).

v. Information should be garnered in a timely and efficient manner in order to facilitate a comprehensive cost-benefit analysis of MAM prevention programmes. This can be achieved through: 1) collecting cost data at the inception of the programme; 2) strengthening mechanisms for collecting monitoring data and background information to help contextualize findings; and 3) ensuring that the demand for cost data is presented to WFP headquarters in order for all necessary resources to be made available. Review of standard cost data reporting mechanisms and formats could be considered for different organizational levels within WFP and its cooperating partners.

These actions should be implemented in a timely manner to facilitate moving forward with rigorous MAM-based intervention. This point is directed towards multiple levels within WFP, calling specifically the Sudan country office and WFP headquarters to action.

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