

Baseline Report: Mutasa Prevention of Stunting Pilot, July-August, 2014

Report Dated: 13 October 2014

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ACRONYMS AND ABBREVIATIONS

CSB++	Corn Soya Blend
ENA	Emergency Nutrition Assessment
GAM	Global Acute Malnutrition
WFH	Weight for height
IYCF	Infant and young child feeding practices
MAM	Moderate acute malnutrition
MoHCC	Ministry of Health and Child Care
PDA	Personal Digital Assistants.
SAM	Severe Acute Malnutrition
SMART	Standardized Monitoring and Assessment of Relief and Transitions
SPSS	Statistical Packages for Social Scientists
SRF	Strategic Results Framework
UNICEF	United Nations Children Funds
WFP	World Food Programme
WHO	World Health Organisation
ZDHS	Zimbabwe Demographic Health Survey

1. EXECUTIVE SUMMARY

Background: The World Food Programme (WFP) in technical collaboration with Ministry of Health and Child Care (MoHCC) embarked on a Prevention of Stunting programme under the UN (United Nations) Flagship Programme. As this is the first time that the programme is being implemented, a baseline survey was conducted in collaboration with Plan International and the MoHCC. The baseline training, data collection and analysis were conducted between July and August 2014.

Objectives: The overall goal of this survey was to assess the prevalence of stunting in children 6-18 months of age in Mutasa District and provide baseline information to measure the achievement of objectives. This will provide benchmarks to enable the tracking of the programmes objectives as well as the outcomes during and after the implementation of the programme.

Study design: This was a panel study in which information on the same people is collected at the beginning of and six months after programme implementation. 33 participating health centres (clusters) were included in the sample based on WFP's sampling guidelines highlighted in the 2014-2017 Strategic Results Framework (SRF) to ensure the results are representative.

Sample size: The sample size was estimated using a sample size calculator software package applying an estimated stunting prevalence of 40 percent, a precision of 3, and a design effect of 1.5. A sample size of 12 children per cluster (400 total) was used to estimate the prevalence of stunting.

Data collection: Data was collected by WFP Mutare Sub-Office with support from the country office. The data collection exercise took place from the 22nd to the 31st of July 2014.

Data Capture and Analysis: The data was collected at field level using Personal Digital Assistants (PDA) running a customized CS-PRO sort software package. SPSS was used for processing and cleaning of the data. Child data which included age, height and weight were then imported into the Emergency Nutrition Assessment (ENA). ENA is a software package, accompanying the Seasonal Monitoring and Assessment for Relief and Transition methodology used for the final cleaning, plausibility checks and analysis of anthropometry.

RESULTS

In terms of demographics, 84 percent of the households were male headed, 5% of the household heads were chronically ill. The mean age for the children was 12 months and the ages ranged from 6 to 18 months.

Overall stunting (moderate + severe stunting) was high at 29.9 percent while prevalence of moderate stunting and severe stunting was 16.4 percent and 13.4 percent respectively. Boys (34.4%) recorded higher stunting rates than girls (24.7%). Trends of malnutrition for boys and girls are consistent with past nutrition surveys conducted in 2010 and 2014.

Although this is a baseline for the prevention of stunting programme, weight for height (WFH) measurements were also collected to determine the level of acute malnutrition as there is a parallel Health and Nutrition Programme focusing on the treatment of moderate acute malnutrition (MAM). Global acute malnutrition (GAM) prevalence was at 4.5 percent at par with the national thresholds while severe acute malnutrition (SAM) and MAM were at 2.8 percent and 1.8 percent respectively. Boys had the highest prevalence of GAM, (5.7%), SAM, (1.9%) and MAM, (3.8%) compared to girls with prevalence of 3.2 percent, 1.6 percent and 1.6 percent respectively.

Prevalence of underweight for the sampled children was 8 percent, moderate, 6 percent, and severe underweight at 2 percent. Consistently, males 10 percent had higher prevalence of underweight compared to their female, 8 percent, counterparts.

Results revealed that 33 percent of the children had suffered from illness two weeks prior to the survey. The most common ailments reported were coughs, (34%) followed by fevers, (29%) and diarrhoea, (25%). Prevalence of stunting was high among children who had diarrhoea and fever. Breastfeeding levels were high as 88 percent of the mothers were still breastfeeding their children. The mean diet diversity was two. Only 6 percent of the children were consuming at least four food groups. Some 3 percent of the breastfed and none of the non-breastfed children were meeting the minimum acceptable diet.

2. Background and objectives

Various nutrition and demographic surveys have shown that malnutrition in Zimbabwe is characterised by chronic malnutrition as opposed to acute malnutrition. Results of exploratory analysis in Zimbabwe have shown that national stunting rates are high at approximately 30 percent. This is consistent with the preliminary findings of Nutrition surveys carried out in 2011 and 2014 which showed high prevalence of stunting especially in districts located in the Eastern Highlands having the highest rates of over 40 percent. The findings of the recent MICS survey have shown that national stunting prevalence rate currently stands at 27.6 percent.

It is against this backdrop that WFP under the UN Flagship programme started piloting the Prevention of Stunting programme targeting children under the age of two. According to the World Health Organisation, the major decline in height for age for children occurs during the period of gestation to approximately 24 months after birth. This highlights the need to identify interventions which addresses stunting before birth, targeting pregnant women and during the first two years of the child. WFP in partnership with Plan International and the Ministry of Health and Child Care are currently implementing a blanket supplementary feeding programme of CSB ++ to all children between the ages of 6 to 18 months in Mutasa district. The standard ration size for each child is 6kg of CSB++ for a duration of six months. It is important to note that during the second and third months of the implementation of the programme, the ration sizes were increased to 9kg and 7.5kg respectively. The programme is carried out in partnership with Plan International and the Ministry of Health and Child Care.

The overall goal of this survey was to assess the prevalence and determinants of malnutrition, and in particular stunting, in children 6-18 months of age in Mutasa district to establish baseline information required to assess the impact of the Prevention of Stunting Programme. The survey sought to estimate the prevalence of acute and chronic malnutrition in children 6-18 months and diet diversity of and infant and young child feeding practices.

3. Sampling methodology

The development of the baseline survey began in July 2014. The baseline survey collected data on demographics, health, dietary diversity and water and sanitation. The baseline study collected indicators such as dietary diversity, infant and young child practices and minimum acceptable diet. Anthropometric measurements, which enable the determination of the nutritional status of the children, were also collected during the registration exercise and were incorporated in the baseline survey. Data collection took place from the 22nd-31st of July 2014. Food distributions and data collection for the survey were harmonized to optimise human, time and financial resources. The

number of children registered by the end of registrations on 15 July was 2,338 less than half the projected figure of 5,000. The number of children registered as of the 2nd of October was 3, 431.

This study has collected information on children aged 6-18 months at programme inception in July 2014. After six months of implementing the programme, a post-baseline survey targeting the same children will be conducted to compare baseline findings and track the changes that might have occurred.

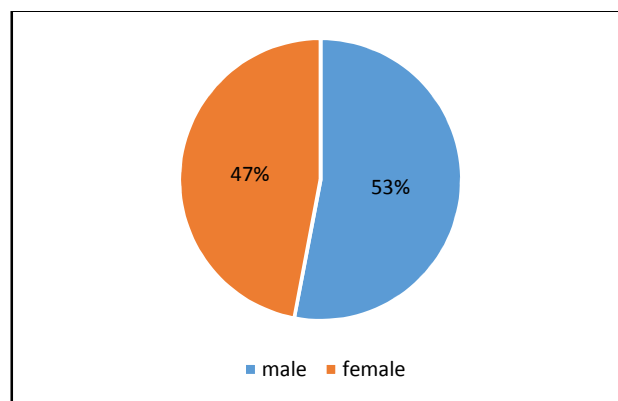
The survey utilized a two-staged random sampling methodology in an effort to provide an unbiased and representative estimation of the information obtained. A total of 33 health centres were selected to participate in the Prevention of Stunting Programme. Within each cluster/health centre a minimum of 12 children were selected based on the simple random sampling procedure giving a total 400 children against the actual sample size of 375 to mitigate against non-responses, transfers and loss to follow up. From the total of 400 households, only one household was removed from the sample because the child was above the age of 18 months. Information was however recorded from 402 children from the 399 households as there were three households having more than one child aged between 6-18 months. The sampling frame consisted of 2,338 children drawn from 33 clinics out of 43 existing clinics.

4. Survey Findings

4.1 Profile of the children

A total of 402 children were sampled. The sample consisted of 53 percent male children and 47 percent female children (**Figure 1**).

Figure 1: Sex composition



The mean age of the children was 12 months while the range of children was 6-18 months. According to the WHO, the first 1000 days of life is the window of opportunity for the prevention or reversal of stunting. Therefore, the programme targets children of 6-18 months to ensure that they receive a six month ration before they are discharged from the programme at 23 months.

4.2 Household Demographics

Results showed that 84 percent of the households were male-headed and 16 percent female-headed. The mean age of household head was 38 (minimum 20 and maximum 75 years). The mean household size was 5.45 ranging from 3 to 12 members. Some 52 percent of household heads were below 36 years indicating that household heads were mainly young adults. A sizeable number of teenage mothers was observed during field visits in more remote communities in the district. Since the age of the mother is one of the determinant factors of malnutrition, a question will be included in the post baseline survey to estimate the number of young mothers.

Only 5 percent of the household heads were chronically ill while only one percent were both chronically ill and disabled. The effective dependency ratio is defined as the ratio of able bodied member's age 18-59 years compared to members aged 0-17 years, 18-59 years and chronically and disabled members aged between 18-59 years. The majority of households, (96%) had low effective dependency, meaning that an able bodied member in the household was taking care of less than 4 dependents.

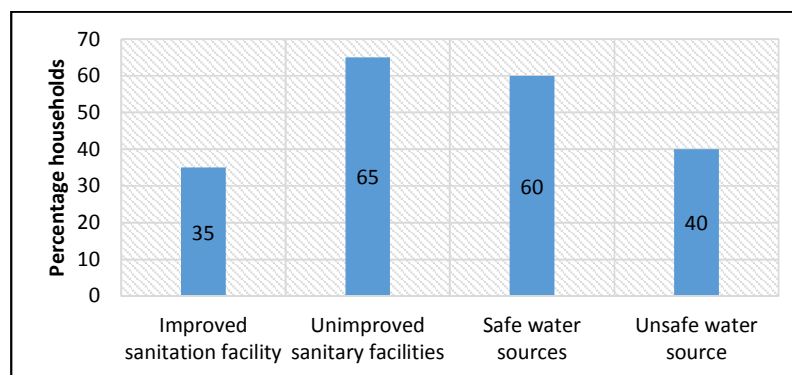
The most common livelihood source included casual labour, (29%) followed by waged employment (18%). Mutasa district has commercial tea, coffee, timber and fruit plantations and mines which are a source of livelihood for the inhabitants. Some of the community members are small-holder producers of cash and food crops (19%) and vegetables (11%). The district is the major source of vegetables sold in the nearby city of Mutare. The perennial streams flowing through the district allow for year round cultivation

4.3 Water and sanitation

According to the UNICEF framework of malnutrition water and sanitation are some of the underlying causes of malnutrition. During analysis, sources of water were classified into safe (piped into dwelling, neighbouring tap, borehole with pump and protected well) and unsafe water sources (unprotected wells and ponds, rivers and streams). Results showed that 60 percent of the households had access to safe water.

The types of sanitary facilities were also classified into unimproved (pit latrine, open pit, bush shared private toilets) and improved sanitary facilities (flush pour and ventilated pit latrines). Results indicate that 65 percent had no access to good sanitation (**Figure 2**).

Figure 2: Water and sanitation



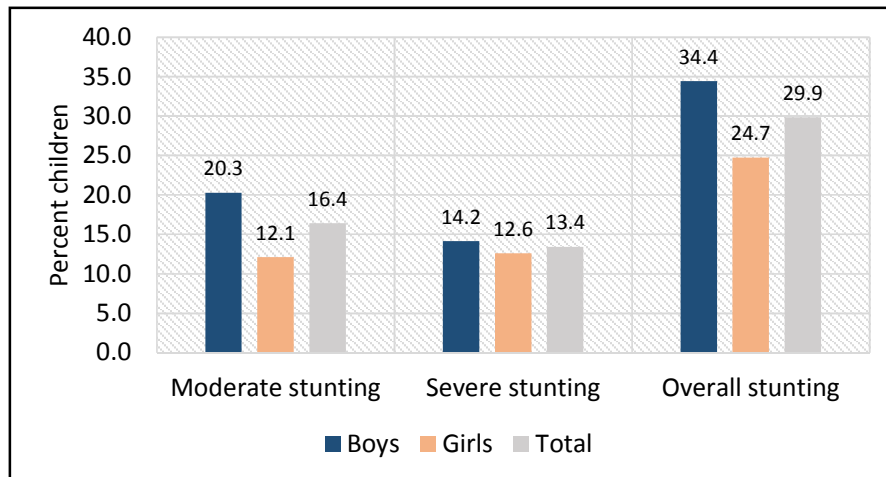
Prevalence of stunting

Children with a low height for age (HFA) are often referred to as stunted. Stunting is a form of chronic malnutrition which emanates from intrauterine growth retardation, prolonged nutrient inadequacies and/or repeated infections. The sample had a stunting rate (sum of moderate and severe stunting) of (29.9%), moderate, (16.4%) and severe stunting, (13.4%). Results showed that 70% of the children were not stunted.

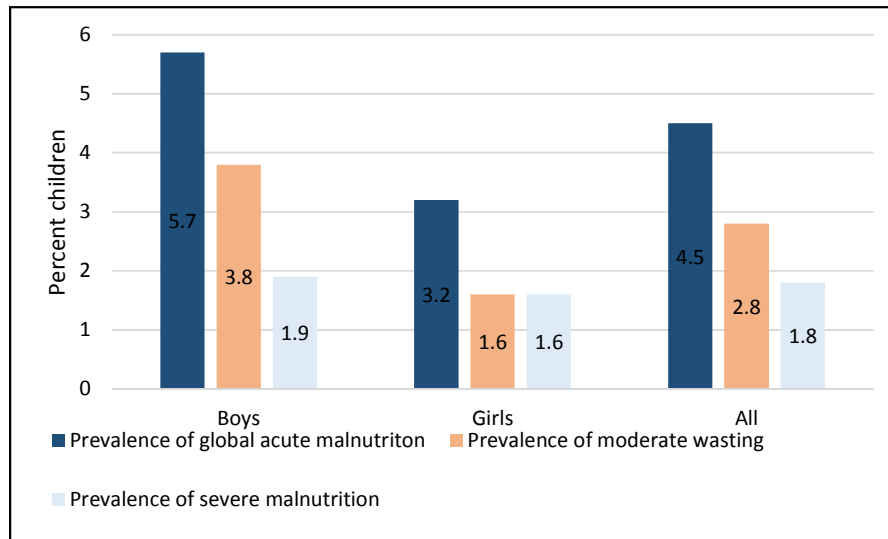
By age group, stunting was worst in children 18 to 23 months (46.3%), followed by children 12 to 17 months (36.7%), and least in children 6 to 11 months (19.6%) (**Figure 3**).

There were significant variations by gender with boys (34.4%) having a higher prevalence of stunting compared to girls (24%) (**Figure 4**). It was beyond the scope of the survey to explore the reasons for the differences but possible reasons include varied feeding practices between boys and girls. Due to socio-cultural beliefs that that boys require more energy than girls, boys are introduced to complementary foods much earlier than girls predisposing them to infections.

Figure 3: Prevalence of stunting by gender



Weight for Height (WFH) measurements were also collected to determine the level of acute malnutrition. Children who have a low WFH are enrolled in the Health and Nutrition Programme mainly focused on the treatment of moderate acute malnutrition (MAM). Global acute malnutrition (GAM) prevalence was at 4.5 percent at par with the national thresholds while SAM and MAM were at 1.8 percent and 2.8 percent respectively. Boys had the highest prevalence of GAM, 5.7 percent, SAM, 1.9 percent and MAM, 3.8 percent compared to girls with prevalence of 3.2 percent, 1.6 percent and 1.6 percent respectively (**Figure 5**).

Figure 4: Prevalence of wasting

Prevalence of underweight for the sampled children was (8%), moderate (6%) and severe (2%). Consistently, (10%) had higher prevalence of underweight compared to their female, (8%) counterparts.

4.5 Health Status

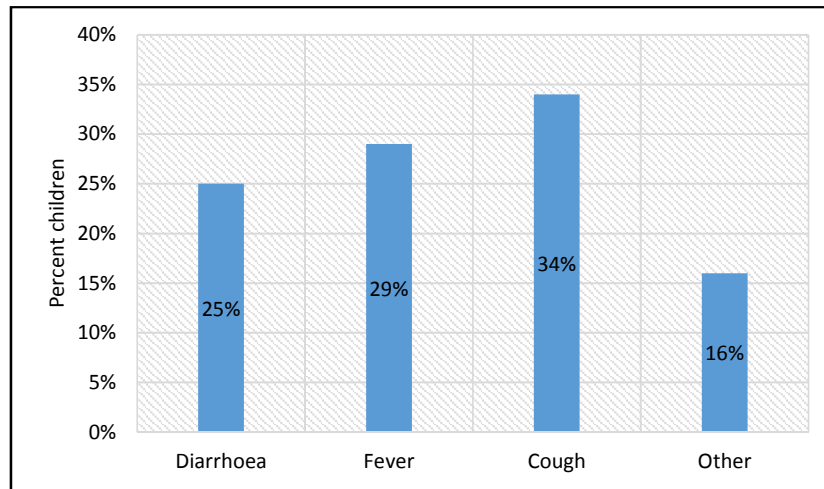
According to the UNICEF framework of malnutrition, health seeking behaviour is a major determinant of child malnutrition. Mothers/caregivers were asked if the child had a health card, as a proxy for health seeking behaviour. Results showed that 96 percent of the children had health cards, while 3 percent did not have for religious reasons. A profile of the Mutasa district shows that a significant proportion of the population are members of the Joanne Marange's Apostolic Church whose belief systems discourage members from receiving medical treatment. Non-availability of health cards at health centre level, (1%) was also cited as a reason for the non-possession of the health card.

Infectious diseases are an immediate cause of death for most of the children under the age of five who die each year in the developing world. The risk of dying from diseases is far greater for children who are hungry and malnourished. Some of the child killer diseases include diarrhoea, acute respiratory illnesses and malaria.

Mothers/caregivers were asked whether the children had an illness two weeks preceding the survey. It emerged that 33 percent of the children reported having an illness during the past 2 weeks. The most common illness across all districts cough, 34 percent followed by fever, 29 percent and diarrhoea 25 percent (**Figure 6**).

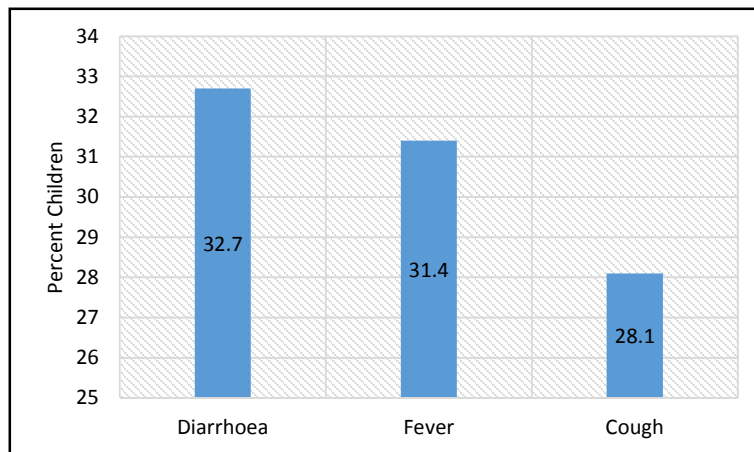
Other illnesses ranged from eye and ear infections, vomiting, chest pains, malaria, rashes, wounds and stomach aches. There was a slight variation by gender with more males, 34 percent compared to females, (31%) having had an illness.

Figure 5: Prevalence of illness



Association between cough, diarrhoea and fever: There is a strong causal relationship between diseases and acute malnutrition. An association between stunting and diarrhoea, fever and cough was done to estimate the prevalence ratio of stunting in children who suffered diarrhoea, cough or fever two weeks prior the nutrition assessment. Prevalence of stunting was highest in children who had diarrhoea, 32.7 percent (**Figure 7**). The results of statistical tests for association of diseases and stunting, however, showed that there is no association between the incidence of the diseases in the past 2 weeks and prevalence of stunting ($p>0.05$). This is because stunting is more chronic and cannot be attributed to a one time incidence of illnesses. Repeated infections, however, result in stunting.

Figure 6: Prevalence of stunting in children with illness



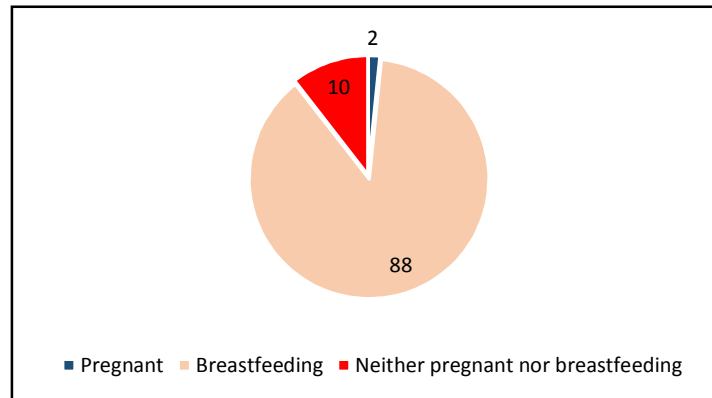
An outbreak of measles was reported in one of the clinics (Sherukuru clinic) where a total of 6 infant deaths were reported among children from the Apostolic Sect. At another health centre (Guta Clinic), a total of 2 infant deaths were recorded. Anecdotal evidence showed the existence of harmful infant and young child practices which included the use of the back of a teaspoon to “clean” infants’ throat wounds.

In some clinics, members of the apostolic churches were accessing full health services. This was mainly achieved through the involvement of one of the members as the village health workers. This made it much easier to sensitise and mobilise the members to access health care.

4.6 Infant and young child feeding practices

The majority, (82%), of the women were breastfeeding, while the remaining (10%) were neither pregnant nor breastfeeding. Only a small proportion were pregnant (**Figure 8**).

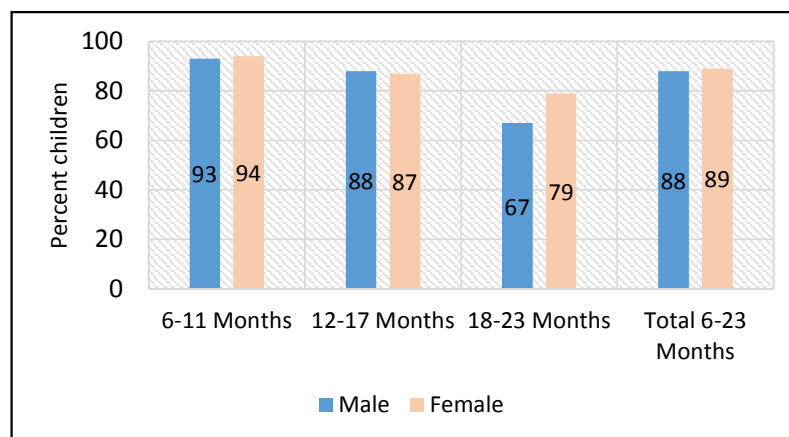
Figure 7: Percent children with pregnant/breastfeeding mothers



Children under the age of two who have pregnant mothers are at risk of malnutrition as they tend to be weaned off earlier and are likely to receive less attention than children whose mothers are not pregnant.

Breastfeeding levels were high with 89 percent of the children being breastfed. There was no significant difference between boys and girls. Breastfeeding levels were high among the children aged 6-11 months followed by the 12 to 17 months and least in the 12-23 month category.

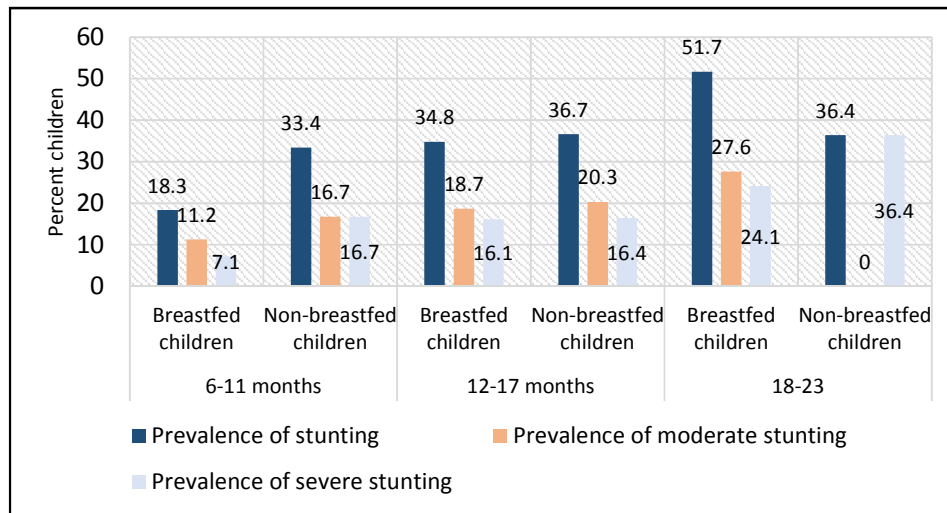
Figure 8: Percent children being breastfed



An association was done to estimate the prevalence of stunting among breastfed and non-breastfed children and results showed that stunting levels were significantly higher among non-breastfed

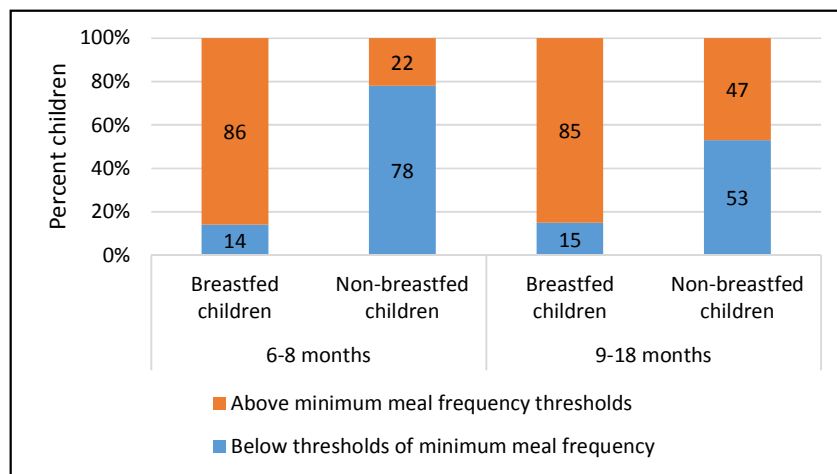
children between the ages of 6-11 and 12-17 months. However, the highest stunting levels were highest among breastfed children aged 18-23 months (**Figure 10**).

Figure 9: Prevalence of stunting by breastfeeding status



Based on a 24 hour recall period, information on the number of meals for children was collected to establish the proportion of children consuming the minimum meal frequency. The minimum meal frequency is defined as the proportion of children aged 6 – 23 months who receive solid, semi-solid, or soft foods (also including milk feeds for non-breastfed children) the minimum number of times or more. The minimum meal frequency for breastfed children between children 6 – 8 months is 2 and 3 for children aged 9 – 23 months. For non-breastfed: aged 6 – 23 months) the minimum number of meals is 4.

Figure 10: Minimum meal frequency

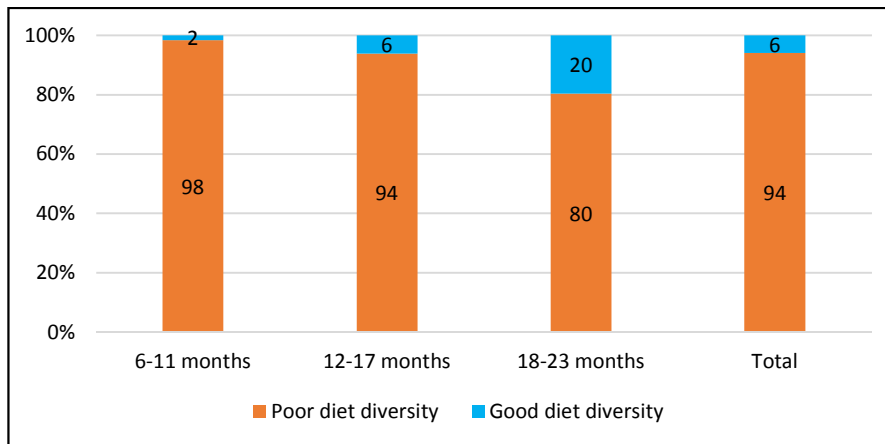


Non-breastfed children between the 6-8 month (86%) age group had a meal frequency below the minimum thresholds while non-breastfed children aged between 9-18 months (53%) were consuming less than 4 meals (**Figure 11**).

4.7 Diet Diversity

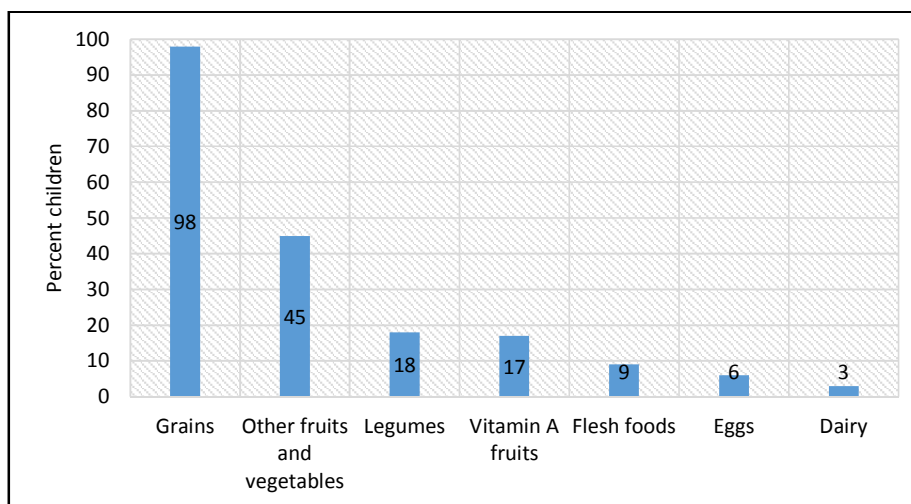
Lack of dietary diversity and essential minerals and vitamins also contributes to increased child malnutrition. Using a 24 hour recall period, information on foods consumed by children was collected to establish dietary diversity. Children who consumed less than 4 food groups were classified as having a poor diet, children who consumed 4+ good groups were classified as having good dietary diversity. Results showed that only 6 percent of the children (**Figure 12**) were having good dietary diversity consisting of grains, legumes, vegetables, Vitamin A rich fruits and legumes. The average diet diversity was 2.

Figure 11: Diet diversity



The majority of the children were consuming cereals, (98%) and vegetables, (45%) and relatively few, legumes (18%) and Vitamin A fruits (17%). Very few children were consuming eggs (6%), dairy products, (3%), meat (9%), legumes (18%) and Vitamin A fruits (17%) (**Figure 13**). Consumption of milk and milk products (tinned milk, yoghurts, animal milk and formulae) for both breastfed and non-breast fed children was very low at 1%. Consumption of milk and milk products (tinned milk, yoghurts, animal milk and formulae) for both breastfed and non-breast fed children was very low at 1%.

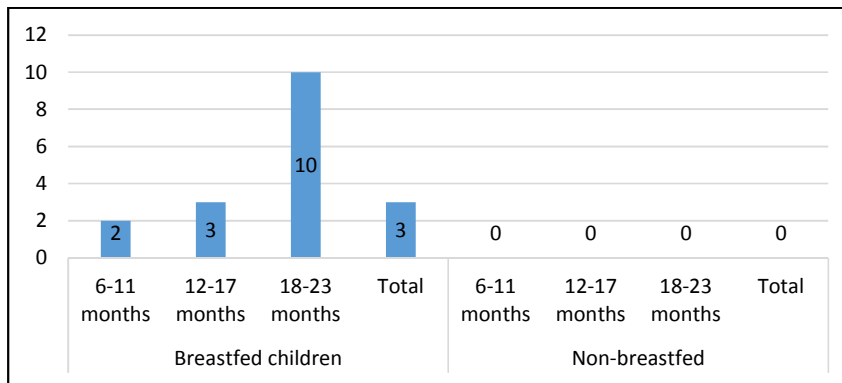
Figure 13: Foods consumed during the previous day



4.8 Minimum acceptable diet

The minimum acceptable diet measures the proportion of breastfed children who consumed at least the minimum level of dietary diversity and frequency of meals during the previous day. It also measures the proportion of non-breastfed children who received at least two milk feedings and consumed the minimum dietary diversity and frequency of meals based on a 24 hour recall period. None of the non-breastfed children reached the thresholds for minimum acceptable diet particularly because they lacked milk feedings in their diet. Only 3 percent of the children who were breastfed, had a minimum acceptable diet compared (Figure 14).

Figure 124: Minimum acceptable diet



At the distribution point, as mothers waited for distributions, it was observed that some young beneficiaries at WFP distribution points were provided with wholesome foods such as bananas, bread and rice; while others ate processed foods such as sweets and salted crackers.

5. Summary of findings

- Prevalence of stunting levels for Mutasa (29.9%) are consistent with the national thresholds currently standing at 27.6 percent.
- Consistent with national nutrition surveys, boys recorded significantly higher stunting rates compared to girls.
- Non-breastfed children have higher stunting rates than breastfed children.
- More non breastfed children were consuming meals below the standard thresholds.
- Only 3 percent of breastfed children were consuming a minimum acceptable diet. This shows that the larger proportion of children were not meeting their energy and nutrient requirements.

6. Conclusion and Recommendations

- Sub office to complete and submit anthropometric data for all 2,338 children.
- Geo-coordinates to be provided for all 33 participating health centres in the district.
- Nutrition messages to be prepared for dissemination during pre-distribution address.
- Help desks to be provided at all distribution sites.
- Post-distribution monitoring, coverage survey and final review to be implemented during the last quarter.
- Special focus should also be directed towards educating mothers on good feeding practices for non-breastfed children.
- Programmatic implications of the key findings will be explored further and presented in the final activity report.

Annexes

Annexe 1: Mutasa District Prevention of Stunting Programme Sampling Frame

Participating Health Centre	Total Children 6-18 months	Number of children sampled	Actual number of children interviewed
Old Mutare Hospital	49	12	12
Red Wing Mine Clinic	94	12	12
St Augustine Clinic	66	12	12
Zongoro Clinic	66	12	14
Drennan Clinic	13	13	12
Imbeza Clinic	17	12	12
Jombe Clinic	97	12	12
Shebba Clinic	23	12	12
Guta Clinic	98	12	12
Mt Jenya	39	12	12
Tsonzo Clinic	57	12	13
Chinamasa Clinic	31	12	12
Haparari Clinic	49	12	12
Sherukuru Clinic	67	12	12
Eastern High 5 Clinic	83	12	12
Sagambe Clinic	8	8	8
Zindi Clinic	297	16	16
Chitombo Clinic	55	12	12
Gatsi Clinic	78	12	12
Mupotedzi	62	12	12
Ngarura Clinic	94	12	12
Hauna Clinic	136	14	14
Honde Mission Clinic	64	12	12
Samaringa Clinic	40	12	12
St Peters Clinic	198	15	15
Chisuko Clinic	177	14	15
Katiyo	26	12	12
Muterere Clinic	57	12	12
Sadziwa Clinic	42	12	12
St Barbara Clinic	19	12	11
Triashill Hospital	49	12	12
DC Clinic	79	12	12
Sakupwanya Clinic	8	8	8
Total	2338	400	402

Annexe 2 Definition of terms

Anthropometry - The study and technique of taking body measurements, especially for use on a comparison or classification basis.

Design effect - The loss of sampling efficiency resulting from the use of cluster sampling instead of random sampling (a design effect of 2.0 is commonly used for anthropometric and immunization surveys).

Length-for-age - An index of past or chronic nutritional status; an index which assesses the prevalence of stunting.

Malnutrition encompasses a range of conditions, including acute malnutrition, chronic malnutrition and micronutrient deficiencies.

Panel studies - A study that provides longitudinal data on a group of people, households, or any other social unit, termed 'the panel', about whom information is collected over a period of months, years, or decades.

Stunting - A slowing of skeletal growth that results in reduced stature or length; a condition that usually results from extended periods of inadequate food intake and infection, especially during the years of greatest growth for children.

Wasting - A condition measured by weight-for height; a condition that results from the loss of both body tissue and fat in a body; a condition that usually reflects severely inadequate food intake and infection happening at present. Wasting is defined as the percent of children (6-59 months) falling below -2 standard deviations for weight-for-height plus all children with edema.

Underweight - A condition measured by weight-for-age; a condition that can also act as a composite measure of stunting and wasting.

Weight-for-age - An index of short and long term malnutrition referred to as under nutrition; an index also used for young children or when length measurements are difficult to do accurately.