PATH/Evelyn Hockstein

ETHIOPIA

FOCUSING ON IMPROVING COMPLEMENTARY FEEDING IN ETHIOPIA

Trials of Improved Practices in an Urban Area

DECEMBER 2011

USAID FROM THE AMERICAN PEOPLE

IYCN USAID's Infant & Young Child Nutrition Project

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Acronym list

ANC	antenatal care
DHS	Demographic Health Survey
FGD	focus group discussion
IYCF	infant and young child feeding
IYCN	Infant & Young Child Nutrition Project
OVC	orphans and vulnerable children
PMTCT	prevention of mother-to-child transmission
RTs	Recipe Trials
TIPs	Trials of Improved Practices
UGP	Urban Garden Program
USAID	United States Agency for International Development

Acknowledgments

We would like to thank the teams of researchers (see Annex I) who interviewed and counseled mothers during the Trials of Improved Infant Feeding Practices (TIPs) and the families who let them into their homes. We appreciate the time they gave to share their opinions and thoughts on their current practices and the new practices they tried over the course of the two household visits.

We would also like to thank the Agricultural Extension Workers and Community Mobilizers from the Urban Garden Project (UGP) who helped to identify and guide our household visits during the course of this research. Their assistance was invaluable to implementing this research in a timely and effective manner. We also appreciate the support of the national- and regional-level staff of UGP, including Nancy Russell, Ketema Abebe, Alem Yalew, Kinfachew Demeke, Gebru Tilaye, and Fikre Enque.

About the Infant & Young Child Nutrition Project

The IYCN Project is the United States Agency for International Development's (USAID's) flagship project on infant and young child nutrition (IYCN). Begun in 2006, the five-year project aims to improve nutrition for mothers, infants, and young children, and prevent the transmission of HIV to infants and children. IYCN builds on 25 years of USAID leadership in maternal, infant, and young child nutrition. Our focus is on proven interventions that are effective during pregnancy and through the first two years of life.

For more information, please visit www.iycn.org.

Executive summary

Inappropriate complementary feeding practices are a major contributor to poor nutrition status among children under two in Ethiopia. The just-released preliminary results from the 2011 Demographic Health Survey (DHS) show that stunting, under-weight, and wasting persist as major public health problems. Rates of malnutrition have declined only slightly in the past five years, with 44.4 percent stunting, 28.7 percent under-weight, and 9.7 percent wasting. These national levels mask geographic differences—malnutrition is higher in rural versus urban areas, and some regions are more severely affected—but to a certain extent, malnutrition cuts across all income levels. It is not exclusively an economic issue.

Encouraging and supporting appropriate complementary feeding practices for children under age two are critical elements of efforts to address malnutrition. The promotion of generic messages based on international guiding principles for complementary feeding has not resulted in positive change in practices. The Infant & Young Child Nutrition (IYCN) Project supported the implementation of qualitative research—a set of Trials of Improved Practices (TIPs)—in an effort to better understand current practices among an urban population, some of who are engaged in the USAID's Urban Gardens Program (UGP), and how complementary feeding practices might be improved based on actual experience and input from mothers. This report presents the results of that research.

TIPs is an innovative research methodology that requires a series of household visits to learn and engage with mothers on different practices. This research entailed a series of two visits. In the first TIPs visit, researchers collected background information, qualitative data on feeding practices, and implemented a modified 24-hour recall of the family diet and for the child under two. After a quick assessment of this information, the researcher conducted a brief discussion/counseling session on feeding practices with the caregiver/mother. The purpose of this session was to identify and agree on a couple of specific practices that the mother/caregiver would try for a week to help improve the child's diet/feeding behavior. In the second, follow-up visit to the same households, the 24-hour recall was repeated and the researcher discussed the outcome and response of the mother/caregiver to the practices that she had agreed to try in the first visit.

Four general research areas guided this research:

- How mothers feed children from 6–24 months;
- Availability and use of different foods in the household focusing on the foods used in the preparation of the family meal;
- The practice of separating out food/using a "child bowl/plate" for the child 6–24 months old for different age groups within this period;
- The willingness of mothers to monitor the amount of food the child eats at a meal and to increase the amount if needed.

Two similar, poor urban populations from two districts (Adama and Debra Zeit) comprised the sample for this qualitative research. While the entry into these communities was through the UGP, only about one-third (38 percent) of the participant households were participating in the

UGP. A total of 38 households were visited at least once. Two households were not available for a second visit.

Results: 6–8 months. Children in the 6–8-month-old age group are at high risk for illness, undernutrition, and stunting. Children do not receive quality complementary foods; diets are very low in essential micronutrients. Many children receive very little energy through the foods that they consume in addition to breast milk. Some are using the risky practice of bottle feeding. The trials showed that mothers were willing to try new practices and, in the majority of cases, that improvements in child feeding practices were possible. All of the mothers did something to improve the diet of their child. Notable positive changes included: increasing the quantity of food provided—ensuring adequate energy intake; providing foods other than just cow's milk—adding egg and potato to the child's diet; making porridges thicker—diluting them less with milk (or water); adding fruits to the child's diet; and adding to the overall variety of foods provided to the child.

Results: 9–11 months. Only three children (9–11 months) could be found to participate in the trials; therefore, these conclusions should be viewed with some caution. The recommendations made to mothers focused on improving the quality of porridge and adding fruits and/or vegetables to the child's diet. The mothers reported that they accepted, tried, and adopted the practices. However, the dietary improvements were not always evident in the child's food recall on the return visit. This was true for recommendations related to adding fruit to the child's diet and to add spinach or kale to the meal. The main recommendation that appeared certain to be followed was to increase the thickness of the porridge for the child.

Results: 12–17 months. All of the mothers with children in the 12–17-month-old age group were willing and able to try new practices to improve complementary feeding for their children. All except one mother liked the new practices which, in general, focused on increasing the quantity of food provided to the child and adding fruits and vegetables to the diet. The recommendations also focused on improving "how" the child was fed, particularly feeding the child from his own bowl/plate rather than hand-feeding from the family plate. The results of the trials showed some improvement; mothers stopped using bottles, and some fed the child from his/her own plate/bowl. The 24-hour recalls conducted in the follow-up household visits did not always concur with the mothers' verbal, positive response to the new practices. This may not indicate a failure to adopt the improved practices, as in some cases they were negotiated and limited to implementation one, two, or a few times a week. Overall, the important changes seen in the 24-hour recalls included: improvement in the amount of food (energy) provided, although in many cases it remained less than the recommended amounts for this age group; and consumption of fruits and vegetables among children who previously had none in their diets.

Results: 18–24 months. For children 18–24 months, the overall recommendations for mothers focused on increasing the amount of food and adding to the diversity of the diet by offering fruits and vegetables to children. To help monitor the amount of food provided, it was also recommended that mothers use a separate plate or bowl for the child. Overall, the response to these recommendations was positive. Mothers were supportive of the new practices and convinced that they would be beneficial for their children. The improved practices that were most commonly documented in the 24-hour recalls included: offering larger quantities of food

than those offered in the first visit and adding some additional variety in the child's diet through providing a fruit or vegetable as a snack or as part of the meal. These improvements translated into an increase in the micronutrients available through the child's food and in the energy available for growth.

Conclusions

For each age group (6–8 months, 9–11 months, 12–17 months, and 18–24 months), the trials showed that many of the current poor feeding practices can be changed if mothers are encouraged and supported in the implementation of new, improved approaches to feeding their children. As the TIPs showed, in many cases the recommendation for a new practice required negotiation with the mother/caregiver. All mothers were not willing to try the same new practice, but all were willing (and almost all were successful) in implementing a practice that they had discussed with the researcher/counselor.

The results point to some specific areas that appear to be the most promising for improving complementary child feeding practices across the different age groups from 6 to 24 months:

- Improving the porridge/special food given to the child by adding different foods to enhance the quality and increase the energy density;
- Adding different mixtures to the porridge or giving different food combinations such as egg and potato;
- Adding fruits to the child's diet, bearing in mind economic constraints that limit availability of fruit on a daily basis;
- Trying to introduce vegetables earlier, starting after six months and continuing (when mothers tried adding vegetables they found that their fears of "doing harm" to the child were not justified);
- Increasing the amount of food provided in part by adding additional foods (fruits and vegetables); and
- Using a separate bowl/plate for the child to facilitate monitoring the amount of food the child consumes.

Background

The USAID IYCN Project is providing technical leadership in the development of a programmatic framework for strengthening and expanding preventive nutrition policies and programs in Ethiopia. IYCN is strengthening the provision of quality nutrition counseling and services through antenatal care (ANC)/prevention of mother-to-child transmission (PMTCT) of HIV services and maternal and child health services as well as mother support group activities within health centers. Specifically, IYCN has assisted in strengthening the capacity of service providers, case managers, and mother support group mentors to conduct preventive nutrition actions, including nutritional assessments as well as providing quality counseling and support to mothers and caregivers.

The IYCN Project is also supporting the integration of nutrition with urban agriculture activities through its collaboration with the USAID's UGP implemented by DAI. UGP collaborates with local NGOs, the Ethiopian government, and other partners to implement the project in poor, urban settings. Orphans and vulnerable children (OVC) between the ages of 10 and 18 and their caregivers are brought together in groups on donated land in communities and schools to develop gardening skills and to provide a platform for building health and nutrition knowledge and skills.

As part of the process toward developing materials and more effective programming in infant and young child nutrition, IYCN has supported formative research to better understand the status of maternal dietary and infant and young child feeding practices in Ethiopia. This report describes the TIPs formative research conducted by IYCN and UGP specifically focused on learning more about complementary feeding practices in poor, urban populations, many affected by HIV/AIDS.

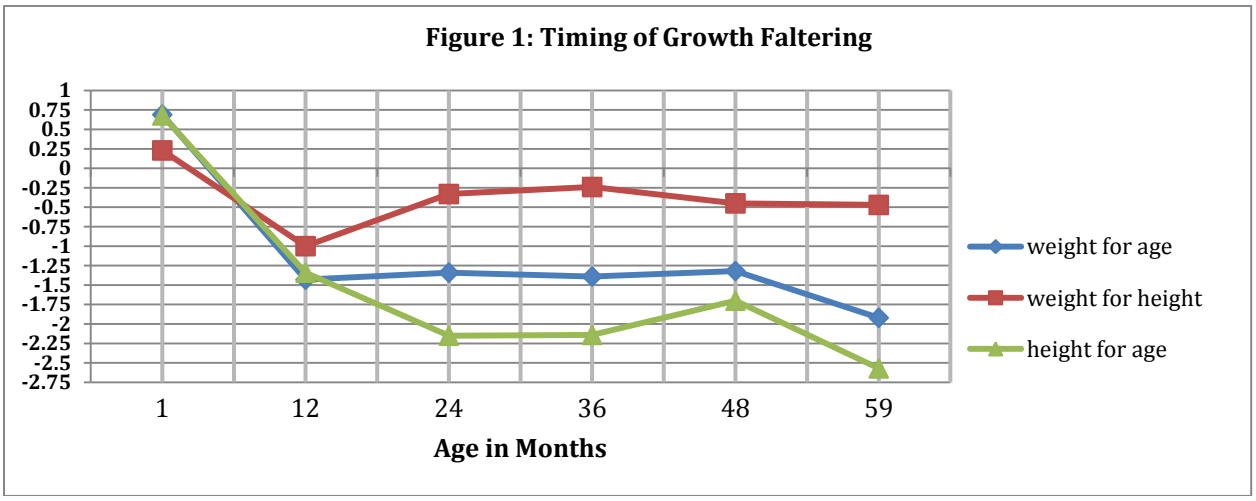
Overview of infant and young child nutrition status

Many nutritional surveys have shown that malnutrition in Ethiopia is a serious issue. The most recent preliminary results of the Ethiopia DHS (2011) show that national rates of stunting, under-weight and wasting among children under five years old stand at 44.4 percent, 28.7 percent, and 9.7 percent respectively and have declined only slightly in the past five years.[1] Exclusive breastfeeding rates among children under five months are almost stagnant, having increased only three percent from 49 to 52 percent from 2005 to 2010 (DHS, 2005; DHS 2011). Micronutrient malnutrition is also problematic—deficiencies in vitamin A, iron, and iodine are all major public health problems. Some improvements have been seen in anemia. Levels have decreased by almost ten percentage points among both women and children in the last five years—from 54 percent of children and 27 percent of women in 2005 to 44 percent of children and 17 percent of women in 2011.[2]

Examining the trend in malnutrition, national nutrition status data indicate that at birth, infants in Ethiopia are at normal nutrition status, but their growth declines rapidly during the first year of life and stunting (low height-for-age) continues during the second year of life (see Figure 1

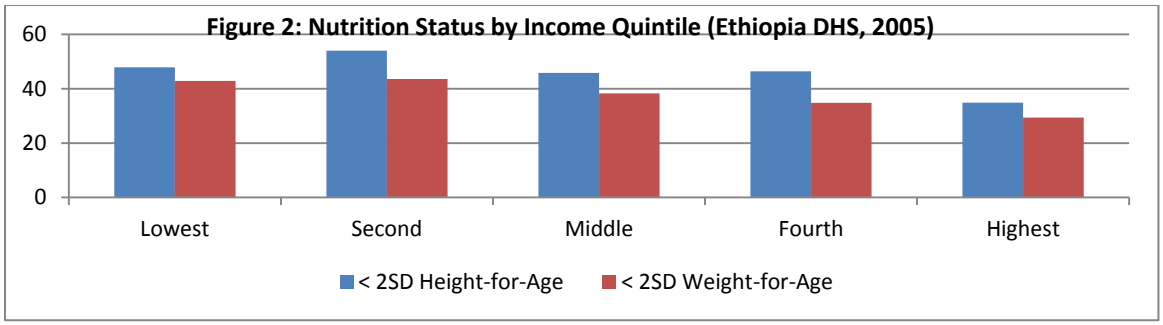
[1] The 2005 DHS documented rates of 50.8 percent stunting, 32.9 percent under-weight, and 12.2 percent wasting based on the WHO 2006 standards.
[2] DHS 2011.

below). This shows the importance of addressing practices during the critical period, the first two years of life.



Source: Data taken from Cesar Gomes Victora, et al. *Journal of Pediatrics*, March, 2010.

Also notable is that child nutrition status in Ethiopia is not defined exclusively by income quintile (see Figure 2 below). This pattern of under-weight and stunting indicates that economic factors are not the overriding reason for the decline in growth of children under two.[3]



Overview of information on complementary feeding practices

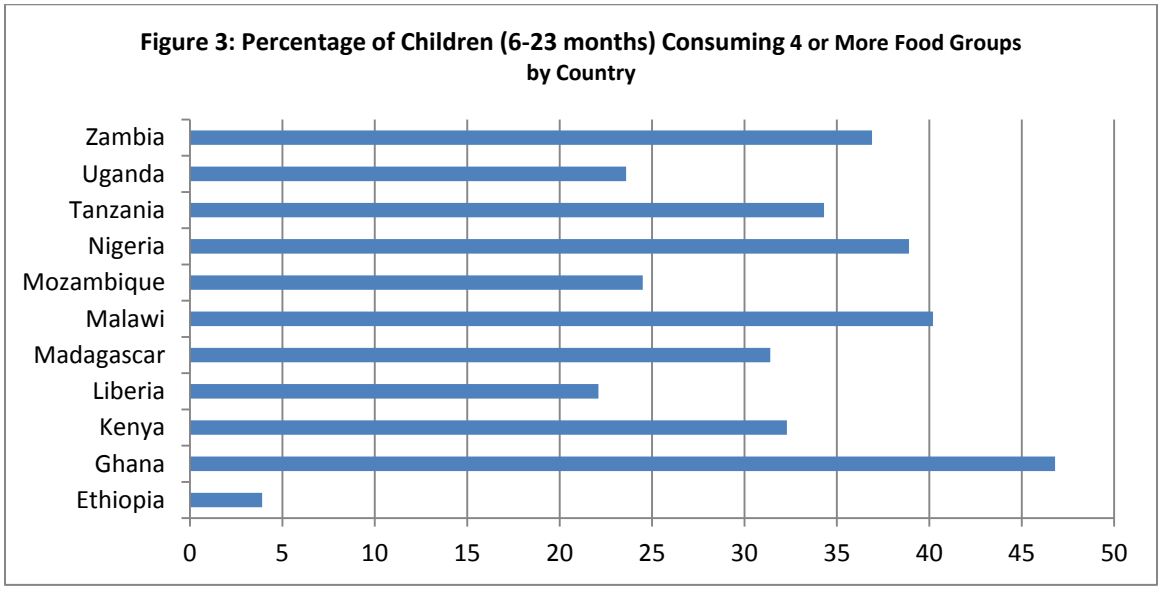
Complementary feeding practices in Ethiopia have been documented both through qualitative and quantitative research. Some of the highlights of this research are summarized below. For babies in their first months of life, feeding includes breastfeeding and giving cow's milk, porridges, and gruels. The quantity of the cow's milk given varied. Much of the cow's milk that is sold has been diluted. Some dilute the milk at home before giving it to children. While exclusive breastfeeding for the first six months of life is recommended, first foods are often provided prior to six months, and, as noted above, the most recent national survey shows that this practice continues unabated.

Quality complementary food should be introduced at six months of age. However, in Ethiopia at 6–8 months of age, only 50 percent of children are consuming solid or semi-solid food (2005

[3] DHS 2011 data not yet available.

DHS). This increases to almost 80 percent of children ages 9–11 months (2005 DHS). At 12–17 months, almost 90 percent and at 18–23 months about 95 percent of children are consuming solid or semi-solid food (2005 DHS). Overall, the transition to adult food lasts from one to four years.[4]

The quality of complementary foods is dependent on having diversity in the diet. This means consuming a number of different foods, especially foods that provide micronutrients as well as adequate energy in addition to breast milk. National-level data show very little diversity in diets throughout Ethiopia. Figure 3 below shows the proportion of children (6–23 months) who consume the minimum number of food groups compared to other African countries. Ethiopia by far ranks the lowest on this measure, with less than five percent of children under two consuming the minimum number of food groups. The country with the next-worse result, Liberia, has more than 20 percent of children consuming the minimum number of food groups.



Source: Kothari, Monica and Noureddine, Abderrahim. 2010. *Nutrition Update 2010*. Calverton, Maryland, USA: ICF Macro.

Research methodology

Overview of Trials of Improved Practices (TIPs)

TIPs is a qualitative research methodology used to develop and test locally appropriate recommendations to improve feeding practices. When applied to IYCF, TIPs identifies improved practices that are acceptable and feasible for families to implement. As all practices are tested, ideally, in people's homes before they are recommended for use in a larger program, TIPs provides an opportunity to learn directly from program participants. Additionally, TIPs gives families the chance to try a new behavior, while program planners/implementers learn from them about what is culturally feasible and acceptable. The purpose of this TIPs research was to test new practices related to complementary feeding among children 6–23 months.

[4] Pending confirmation from DHS 2011 data.

TIPs is a relatively new and innovative methodology for Ethiopia, especially its use in shaping critical strategies to improve IYCF behaviors. The standard approach to TIPs implementation involves three household visits. The purpose of the first visit is to learn about current household feeding practices. The second visit is a "counseling visit," which includes the negotiating of a new practice with the mother or caregiver for her to try. The third visit is a follow-up visit to check on the mother's experience in implementing the recommended/negotiated new practice. This "negotiation TIPs" is mainly used in maternal and infant feeding, and identifies the best choices among a number of different actions that could yield IYCF nutrition benefits.

For several reasons, this TIPs research was implemented through a series of two household visits. First, time was limited for this research activity. The focus on complementary feeding of children 6–24 months was relatively narrow. Some information was already available on complementary feeding practices in Ethiopia. Finally, the results from a series of Recipe Trials (RTs) and Focus Group Discussions (FGDs) that explored current complementary feeding practices among children 6–24 months in the same target area was also available to inform the TIPs research.[5] Therefore, the first and second household visits were combined into one so that the assessment of current practices and negotiation with the mothers both occurred during the first visit. Information was collected as follows:

- In the first TIPs visit, researchers collected background information, qualitative data on feeding practices, and implemented a modified 24-hour recall of the family diet and for the child under two. After a quick assessment of this information, the researcher conducted a brief discussion/counseling session on feeding practices with the caregiver/mother. The purpose of this session was to identify and agree on a couple of specific practices that the mother/caregiver would try for a week to help improve the child's diet/feeding behavior.

- In the second, follow-up visit to the same households, the 24-hour recall was repeated, and the researcher discussed the outcome and response of the mother/caregiver to the practices that she had agreed to try in the first visit.

Research Objectives and Specific Questions

Four general research areas were identified to guide this research:

- To learn more about how mothers feed children from 6–24 months among these target beneficiaries.

- To collect information on the availability and use of different foods in the household, focusing on the foods used in the preparation of the family meal.

- To explore whether mothers like/are willing to practice separating out food/using a "child bowl/plate" for the child 6–24 months old for different age groups within this period.

[5]See Infant & Young Child Nutrition (IYCN) Project. *Integration of Nutrition Education into the Ethiopia Urban Gardens Program: Results of Recipe Trials and Focus Group Discussions*. Washington, DC: IYCN; 2011.

- To explore whether mothers would be willing to monitor the amount of food the child eats at a meal and increase this amount if needed.

Several key research questions were identified within each general research area (see Table 1). Based on the results from the RTs/FGDs and other information on complementary feeding practices in Ethiopia, these questions were expanded to include more information related to specific complementary feeding practices in the Counseling Guide developed for the research (see Appendix 2).

Table 1: Research Questions

Research Area	Research Questions
How children are fed	• At different ages, how does the mother feed her child—on her lap, near her, or is the child on his/her own? • Does the child have a separate bowl/plate or does he/she eat from a family plate? • Does the mother monitor or control in some way what and how much the child eats? How does this vary by age of the child? • How does the mother know how much the child eats? Does she know?
Foods available in the household and which are part of the child's meals	• What are the foods that are commonly used in the household on a daily/regular basis? • How many food groups are consumed on a regular/daily basis in the household? • Are there foods in the household diet that are not a part of the child's diet? Does this vary by the age of the child? • Are there foods that are available to the family through the garden that are used in the family meals? Which ones? Does the child under two consume these foods? Why or why not? • Are there foods that are available to the family through the garden that are not consumed/used in the family meals? Why or why not?
Using a separate bowl/plate for the child	• Are mothers willing to use a separate bowl/plate for the child? Is this a new practice? How would she be able to do this? Does she have a separate bowl/plate? What motivates or inhibits the mother from using a separate bowl for the child at this age? • If the mother were to use a separate bowl/plate, would this mean that she would not sit with the child during his/her meal? • If a separate bowl/plate is not available or the mother is not willing to do this, would the mother be willing to separate out the food that the child should eat in a separate place on her/the communal plate or in some other way? How might she be able to do this?

Monitoring and increasing the amount of food children consume	• How would the mother determine how much food to give to the child in his/her separate bowl/plate? • Would she be willing to give a specific amount (according to the recommendations by age) for that child? • Would she be willing to give the child more than she is currently giving to the child?

Sample Selection and Size

The TIPs research was carried out in Debra Zeit and Adama, two urban districts in the region of Oromia. The sample was expected to be drawn from the pool of households who participate in the UGP; however, during the course of the research, it became clear that few UGP families had children under the age of two. Therefore, to obtain the sample needed, households with children under two were selected from within the same geographic area.

The proposed sample needed for these trials is shown in the Table 2 below; the final sample composition is summarized in Table 3. It was difficult to find children under the age of 12 months, so only 9 children were ultimately in this age category and 29 children were in the 12–24-month age group. A total of 38 households were visited at least once. Two households were not available for a second visit.

Table 2: Sample Targeted for Research

TIPs Households by Age Group of Children	Debra Zeit	Adama	Total by Child Age	Personnel
6–8 months	4	4	8	Three teams of 2 each; one team will work in 2 sites; the other two in one site each
9–11 months	4	4	8	
12–24 months	8	8	16	
Total number of households	16	16	32	

This qualitative research was conducted through the same team of researchers who participated in the RTs/FGDs and IYCN staff. The staff and researchers received three days of training in the TIPs methodology, including the use of all of the instruments developed specifically for this research. During the course of the training program, the specific recommendations for complementary feeding to be tested during TIPs were also developed (see Appendix 2). The researchers/counselors used these recommendations to help them discuss new practices with mothers and to motivate mothers/caregivers to try the new practices. The set of recommendations, together with the question guide, was presented to the caregivers in Amharic through simultaneous translation—answers were recorded in Amharic and then translated back to English. The TIPs research was carried out from April 25 to May 15, 2011.

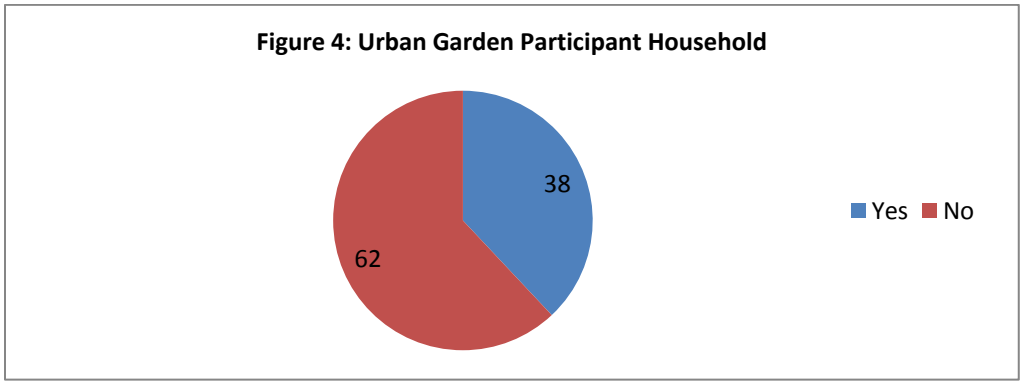
Table 3: Composition of TIPs Sample

Age in Months	Both Districts	Adama			Debra Zeit		
		Total	Male	Female	Total	Male	Female
6–8	6	3	2	1	3	2	1
9–11	3	0	0	0	3	1	2
12–17	10	5	2	3	5	4	1
18–24	19	10	6	4	9	6	3
All (6–24)	38	18	10	8	20	13	7

Results of household trials

General Characteristics of the Sample Population

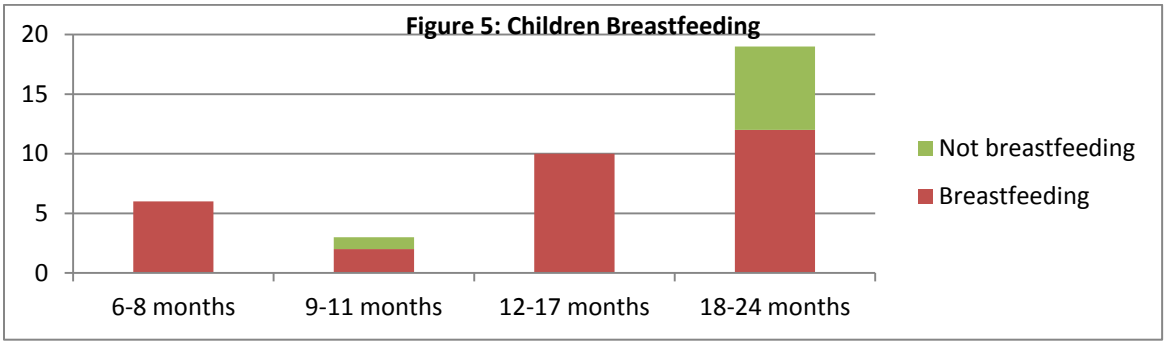
Two similar, poor, urban populations from two districts (Adama and Debra Zeit) comprised the sample. While the entry into these communities was through the UGP, only about one-third (38 percent) of the participant households were participating in the UGP. The majority (62 percent) of TIPs participating households were not involved in the UGP (see Figure 4). This was largely because of the need to find children under the age of 24 months—a group not prevalent in the UGP.



At the time of the first household visit, the majority of the children (28/38 or 74 percent) were deemed healthy by their mothers/caregivers. Of the ten children who were described as ill the day before the interview, five (50 percent) were in the 12–17-month age group, and the rest were evenly distributed across the other age groups, with the lowest proportion of sick children in the oldest age group of 18–24 months (only 2/19).[6]

[6] The "sick" designation was self-reported by the mother and may not be completely valid. The researcher learned that some of the mothers reported their child as "sick" the previous day with the expectation that they might receive something from the program if the child were not well and that they would not receive anything if the child were healthy.

According to the mothers, the majority of children in the sample were still being breastfed. Only eight children (21percent) out of the 38 children in the sample had stopped breastfeeding, and all but one of those children was in the 18–24 month range.



Family Diets

Overall, the meal patterns and practices among the sample population across the two districts were very similar. Therefore, as anticipated, all analyses could be done combining the sample to include all households/children. Also notable was that no major differences were found between the UGP and the non-UGP households.

The typical family diet among the households visited for this research included:

- *Enjera*- staple flat bread made of "teff," a fine grain unique to Ethiopia.
- *Shiro*- homogenous stew whose main ingredient is chickpeas or bean meal mixed with onion and other spices.
- *Wot (meat, chicken, lentils)*- stew-like dipping sauce prepared from any variety of meat, chicken, fish, lentils, or vegetables, cooked with "berbere," an Ethiopian seasoning made from matured red chili peppers.
- *Firfir*- a common breakfast dish made from shredded enjera with spices.
- *Kinche*- boiled cracked wheat cereal; the Ethiopian equivalent of oatmeal.

The foods most frequently consumed by the households for breakfast were bread with tea; fifir; enjera with wot, of meat, chicken, or lentils; and enjera with shiro. Some variations included families eating bread without tea, fifir with dried beef (one family), and enjera with shiro and tomato (one family).

At mid-day, the foods most frequently consumed were: enjera with shiro wot; enjera with meat or chicken wot; enjera with shiro wot and vegetables; enjera with shiro wot and lentils and/or potatoes. Other foods consumed at mid-day included: firfir, enjera with kale, or eggs with bread. The enjera with shiro wot consumed by more than one-third of families did not contain any vegetables.

The foods most frequently consumed at dinner were: enjera with meat or chicken wot; enjera with shiro wot; enjera with shiro wot and lentils; enjera with shiro wot and vegetables; enjera with tomato; or kinche.

Households consuming at least four different food groups on a daily basis are considered to have diverse diets—a proxy for dietary quality. Twenty-four-hour recall data showed that 31.5 percent of households were consuming four food groups and 8 percent five food groups, for a total of 39 percent of households (about two-fifths) with adequate dietary diversity. Twenty-nine percent of households were consuming only two food groups and 31.5 percent were consuming foods from only three food groups. This means that about three-fifths of the households have extremely limited diversity in their diets. Another gauge of quality diet is the level of consumption of fruits and vegetables. In this population, 45 percent of families were consuming some fruits and vegetables (in addition to onion, which every family consumed); only 13.2 percent were consuming vitamin A-rich vegetables.

Results by age group

Children 6–8 Months

Guiding Principles:

-Start at six months of age with small amounts of food and increase the quantity as the child gets older.
-Child should consume about 200kcal/day—equivalent to about one-half to two-thirds of a cup of food at each meal (not including breast milk).
-Gradually increase food consistency as the infant gets older—infants can eat pureed or mashed foods at 6 months and semi-solid foods by 8 months.
-Increase the number of times the child is fed complementary foods as the child gets older.
-The average child should eat two to three times per day.
-Gradually increase food variety as infant gets older.

Current Practices

Six mothers with children 6–8 months old were visited during the household trials. All children in this age group were reported to be breastfeeding during the initial interview questions; however, during the 24-hour recall, one of the mothers contradicted this information and reported giving the child only milk in a bottle. Two other children were also being given milk or a thin gruel in a bottle. The children using bottles were breastfeeding the least based on mothers' reports of the number of times they were breastfeeding during the day and night. Children being given a bottle were breastfeeding, on average, about three times during the day and a few times, or not at all, during the night. Children who did not use a bottle were being breastfed from six to ten times during the day and from three to ten times at night according to the mothers' reports. Complementary feeding practices among this group documented during the first visit included:

- One child was consuming exclusively liquids with no semi-solid or solid foods.

- Half of the children were being given an un-enriched porridge, a food low in nutrient density.
- Two children were consuming commercial, fortified cereals.
- All of the children were given small quantities of food, likely inadequate to meet needs.
- One child (eight months old) was receiving some of the family food, but the mother reported that she was having little success in getting the child to eat the food, indicating that the child would spit it out.

Overview of TIPs

The recommendations that the mothers in this group agreed to try are summarized below in Table 4. Most of the recommendations focused on giving children a healthier/more nutrient-dense porridge. Among this group, most of the mothers tried, liked, and adopted the practices they discussed with the researcher/counselor. In one case, the mother did not provide banana for her child as agreed because she encountered resistance from her husband to give banana at this age. Another mother was unhappy that her child didn't eat all of the porridge that she made and offered to the child, but she still thought that she would adopt the new practice.

Table 4: Summary of Recommendations Made to Improve Child Feeding and Caregivers' Responses

Recommendation	Offered	Accepted	Tried	Liked	Adopted
Prepare mitin flour and give as porridge to the child; add kale	1	1	1	1	1
Give banana	3	2	2	2	2
Try kale with shiro	1	0	0	0	0
Give porridge with potato, carrots, and kale	1	1	1	1	1
Give porridge with oil and finely chopped kale	1	1	1	1	1
Give mashed banana, avocado, and mango with sugar and lemon	1	1	1	1	1
Feed potato and egg one time/day	2	2	2	2	2
Give porridge one to two times/day	2	2	2	1	2

Detailed Results by Recommendation

Prepare mitin flour and give as porridge to the child and add kale.

One mother agreed to try making mitin, although her initial reaction suggested that she questioned whether it was suitable for a child of seven months. Her reaction after the trial was very positive. She said that the baby liked it and was taking the porridge well when it was made with milk. She also noted that the child's siblings said it was delicious. She adopted the practice and said that she will give it daily and recommend it to others. She did not add kale to the porridge.

Give banana.

Three of the caregivers agreed to try giving their children bananas. Two of the caregivers adopted the practice, but one of the mothers remained skeptical of this practice.

- One of the mothers said that she couldn't find a good banana and also added that she thought it was too early to give the child banana. She said that it is not easily digested and also that the father said not to give banana to the child.
- The other mothers reported that their child liked the bananas and they will continue to give them. However, one mother noted that the neighbors didn't approve.
- One of the mothers said she would not recommend this practice to others because if the child got sick then she thought that she would be blamed.

Try kale with shiro.

One mother was asked to try giving kale with shiro to her eight-month-old child but didn't end up trying this recommendation. She gave shiro without kale instead and said that the child ate it well and was coming to the breast less. She questioned whether kale could be given to a child of this age, as she thought that it would give the child a stomach ache.

Give porridge with potato, carrots, and kale.

One mother reportedly gave her child porridge made with potato and carrot and said that her child ate it happily. She also said that she intends to continue to give it to the child and to recommend it to her neighbors. (Note: during the 24-hour recall on the return visit to this caregiver's household, the child had received only cow's milk with sugar and breast milk.)

Give porridge with oil and finely chopped kale.

One mother tried porridge with oil and used spinach instead of kale. She said that the baby liked it well and that it had a laxative effect on the child; this was viewed as positive. She said that the child eats it well and she intends to give it every other day.

Give mashed banana, avocado and mango, with lemon and sugar.

The mother reported that the child liked the fruits and that she felt adding the lemon was good for the body and digestion. She reported that she would continue to give banana daily and other fruits, depending on availability.

Feed potato and egg one time per day.

Two mothers tried this recommendation and both of them reported that they would adopt it. One of the mothers said that her child ate it well and that she thought it would make him strong. She mentioned that the father thought it might be too heavy. The other mother liked it because the child ate it, but she too encountered some resistance in her household among the other children, who said that it was too early for her to give the baby egg and potato.

Give porridge one to two times per day.

Two mothers tried this recommendation, but only one mother liked it. The mother who disliked it complained that the baby did not eat it all and she felt that he did not like it. She says that she will keep giving/trying every day to see if he will eat more because she believes that porridge is good for children.

Review of 24-Hour Food Recalls

Comparing the 24-hour recall data across the two visits (exclusive of breast milk) showed that some of the recommendations were implemented by the caregivers and that this led to improvements in the child's diets (see Tables 5 and 6 below). As these two examples indicate, children were being offered a much wider variety of foods in the second visit. This did not always translate into an increase in the number of kilocalories the child received; in Example 2 below, the child actually consumed fewer kilocalories when the mother implemented the recommendations. However, this assumes that the milk was not diluted (which is a common practice). Also, making the transition to adult/family food (increasing the variety of foods received) is an improvement. In the first example, this eight-month-old child significantly improved both the quality and the quantity of the food consumed. With the addition of enjera to his diet, iron intake increased dramatically. All of the 24-hour recalls did not coincide with what the mothers reported when asked about the new practices. Among the six children in this age group, one of the caregivers continued to follow poor practices—giving exclusively liquids (milk and breast milk) despite reporting that she had tried the recommendations over the week-long trial period.

Table 5: Example 1--Eight-Month-Old Child Diet Before and After Trial

Initial Visit	Amount	Kcal	Iron (mg)	Vit A mcgr	Follow-Up Visit	Amount	Kcal	Iron (mg)	Vit A mcgr
Bread	1 piece	60	.7	0	Fir fir (Enjera) cooked w/ oil, red pepper, onions	1/8	75	7	0
						1 tsp	45	0	0
Tea w/sugar	2 tsp	40	0	0	Enjera w/ shiro	1/4	150	15	0
Rice cooked with oil and onion	½ cup	50	0	0		1 tsp	45	0	0
						1 tsp	12	.5	0
	½ tsp	22	0	0	Enjera w/ shiro	1/8	75	7	0
						½ tsp	22	0	0
						½ tsp	6	.25	0
Total		172	.7	0	Total		430	30	0

Table 6: Example 2--Eight-Month-Old Child Diet Before and After Trial

Initial Visit	Amount	Kcal	Iron (mg)	Vit A mcgr	Follow-Up Visit	Amount (g)	Kcal	Iron (mg)	Vit A mcgr
Milk w/ sugar	7 1/2 cups	450	7.5	0	Fried egg w/ oil, butter, salt, and turmeric	1 egg	50	1.5	25
	5 tsp	100	0	0		2 tsp	90	0	0
					Potato gruel	1/2 potato	40	.5	0
					Mitin porridge	½ cup	75	3	0
					Mitin porridge	½ cup	75	3	0
Total		550	7.5	0	Total		330	8	25

Conclusions

Current feeding practices among children in this age group are putting them at high risk for illness, under-nutrition, and stunting. Children are not being given quality complementary foods; diets are very low in essential micronutrients. Many children were receiving very little energy through the foods that they consumed in addition to breast milk. The use of baby bottles among this group is a particularly risky practice. The trials showed that mothers/caregivers were willing to try new practices and, in the majority of cases, that improvements in child feeding practices were possible. All of the mothers did something to improve the diet of their child; however, there were many poor practices to be overcome. Notable positive changes included:

- Increasing the quantity of food provided—ensuring adequate energy intake.
- Providing foods other than just cow's milk; adding egg and potato to the child's diet.
- Making porridges thicker; diluting them less with milk (or water).
- Adding fruits to the child's diet.
- Adding to the overall variety of foods provided to the child.

Children 9–11 months

Guiding Principles:

-Child should consume 300 kcal/day—equivalent to about ¾ cup at each meal.
-Child should be fed three to four times/day.
-Child should consume a variety of foods: meat, poultry, fish or eggs daily; vitamin A-rich fruits and vegetables daily; diets with adequate fat content; avoid giving drinks/foods with low nutritive value.
-Most infants can eat "finger foods," bearing in mind nutrient density and avoiding foods that may be a choking hazard.

Current Practices

It was possible to visit only three households with children in this age group. Therefore, the conclusions about key practices are based on a very small sample. Among these three children, feeding practices were particularly inappropriate and put children at high risk for under-nutrition and stunting. Practices included the following:

- One child was no longer being breastfed, having stopped at six months. This was not a common practice of this population, given that the majority of mothers in the older age groups were still breastfeeding. The non-breastfed child was receiving mitin porridge and cow's milk.
- A second child in this group was receiving small amounts of the family meal, but the meal lacked diversity so that the quality of the foods received was quite low.
- The third child was being given cow's milk and gruel (one time per day) in addition to breastfeeding.
- Two of the children were receiving milk in a bottle, and all three were hand fed or fed from the mother's cup/bowl.

Overview of TIPs

The recommendations that these three mothers agreed to try are summarized in Table 7 below. All of the feeding practices that were negotiated with the mothers proved to be successful. In one case, the mother didn't particularly like the recommendation—to provide spinach to the child—as the child did not respond well, but she remained convinced that the child should eat vegetables. All of the other recommendations that related to providing a thicker, more substantial porridge and adding fruits to the child's diet were well-received.

Table 7: Summary of Recommendations Made to Improve Child Feeding and Caregivers' Responses

Recommendation	Offered	Accepted	Tried	Liked	Adopted
Give spinach or other vegetable	1	1	1	0	1
Give mitin porridge with milk	1	1	1	1	1
Give thicker porridge by adding oil	1	1	1	1	1
Give fruit (banana, orange, mango)	2	2	2	2	2
Give thicker porridge by adding oil and finely chopped kale	1	1	1	1	1

Detailed Results by Recommendation

Give spinach.

One mother agreed to try adding spinach or other vegetables to the child's diet. She reported that the child was not comfortable with spinach and tried to vomit it. Her neighbor encouraged her to try it repeatedly and, in the end, she felt that it was something she should continue.

Give mitin porridge with milk.

One mother tried mitin porridge and reported that her child loved it. She said that she would give it to the child every other day. However, she did not make it with milk as recommended or add vegetables.

Give thicker porridge by adding oil and add finely chopped kale.

One mother successfully thickened the porridge for the child by adding oil. She commented that she could not also add milk. Another mother also agreed to try adding kale to the porridge in addition to the oil and reported that her child liked the vegetables even though the mother had thought that it wasn't good for the child's stomach.

Give fruits (mango, banana, orange).

Two mothers successfully tried giving fruits to their children. Both of the mothers reported that their babies were happy when they ate the fruit and that they will give it to their children because they want them to grow up healthy. Both said that they will be able to give fruit on the days that they go to the market and can buy it, and that the choice of fruit will depend on availability.

Review of 24-Hour Food Recalls

In general, few changes were seen in the diets of the three children in this age group who participated in the household trials, despite the positive response from the mothers on the recommendations for (and ostensible implementation of) changes in practices. One change that was verified by the 24-hour recall was the improved composition and thickness of the porridge fed to children. As seen in the example below, the energy value of the child's diet increased dramatically in the second household visit. However, the addition of fruits and vegetables was still lacking.

Table 8: Example 1—Nine-Month-Old Child Diet Before and After Trial

Initial Visit	Amount	Kcal	Iron (mg)	Vit A mcgr	Follow-Up Visit	Amount	Kcal	Iron (mg)	Vit A mcgr
Cow's milk (2 times—1/2 cup)	1 cup	60	1	0	Enjera w/ shiro and oil	1/8	75	7	0
						1/2 tsp	6	.25	0
						1/2 tsp	22	0	0
Mitin gruel with sugar	1 cup	75	3	0	Bread	1 piece	60	.7	0
	1 tsp	20	0	0	Tea w/sugar	1 tsp	20	0	0
					Mitin porridge	2 cups	300	12	0
Total		155	4	0	Total		483	20	0

Conclusions

All of the households with children in this age group came from the same community and, as noted, since only three children (9–11 months) could be found to participate in the trials, these conclusions are limited. All of the recommendations focused on improving the quality of porridge and adding fruits and/or vegetables to the child's diet. The mothers reported that they accepted, tried, and adopted the practices. However, while reported as acceptable and adopted in the interviews, the dietary improvements were not evident in the child's food recall on the return visit. This was true for recommendations related to adding fruit to the child's diet for two of the caregivers and two of the mothers who agreed to add spinach or kale to the meal. The primary recommendation that appeared to be followed was to increase the thickness of the porridge for the child. This resulted in an increase in the availability of energy for the children.

Children 12–17 months

Guiding Principles:

-550 kcal/day—equivalent to about one cup at each meal.
-By 12 months, most young children should be eating "family foods."
-Offer meals three to four times a day and additional nutritious snacks may be offered one to two times per day.
-Feed a variety of foods: meat, poultry, fish or eggs daily; vitamin A-rich fruits or vegetables daily; diets with adequate fat content; avoid drinks/foods with low nutritive value.

Current Practices

Ten mothers with children 12–17 months participated in at least one household visit. One of the mothers was unavailable for the follow-up visit. Initial practices among this group showed some positive and some detrimental practices as follows:

- All of the children in this age group were still breastfeeding. Rates of breastfeeding ranged from 3 to 8 times during the day, with half of the group breastfeeding 3 to 4 times and from 0 to 6 times at night, with most breastfeeding 3 or fewer times at night. Continued breastfeeding until 24 months of age is a beneficial practice.
- Half of the children in this age group were eating the regular family foods, and half were also eating five or more times per day (either food or cow's milk). By 12 months of age, children should be beginning to eat family foods. However, the other half of the children were not benefitting from the family meals.
- Fruit and vegetable consumption was very low. Only 30 percent of children were given vegetables mixed in with their meal, and 10 percent were given fruit.
- The number of times that children were fed varied from about three to five times per day on average. Frequency of feeding does not appear to be a major issue.
- The amount of food provided to the child per meal was universally relatively small. Children received only about ½ cup or 1/8 of enjera per meal. This is not enough to meet energy needs almost no matter the quality of the food.

- Children were frequently fed by hand, and some still were being fed with bottles. Some were being left alone to feed themselves.

Overview of TIPs

Among this group, the response to the recommendations for improving feeding practices was overwhelmingly positive. The practices that mothers agreed to try ranged from providing additional foods like spinach, potato, and fruits to increasing the amounts of food provided at each meal. With one exception—adding oil or butter to porridge—the caregivers accepted, liked, and adopted the recommended improved practices.

Table 9: Summary of Recommendations Made to Improve Child Feeding and Caregivers' Responses

Recommendation	Offered	Accepted	Tried	Liked	Adopted
Give spinach and potato	1	1	1	1	1
Give mango 2 times/week	1	1	1	1	1
Give vegetables 1–2 times/week	4	4	4	4	4
Give 2 coffee cups of food at each meal	1	1	1	1	1
Give 1 and 1/2 coffee cups of food at each meal	1	1	1	1	1
Feed porridge 2 times/day	1	1	1	0	1
Give enjera with shiro 2 times/day	1	1	1	1	1
Give barley porridge with oil or butter 2–3 times/day	1	1	1	0	0
Give porridge from teff, peas, or wheat flour with finely chopped vegetables from the garden	1	1	1	1	1
Give banana	1	1	1	1	1
Give porridge with oil instead of Atimit	1	1	1	1	1
Give vegetables daily	2	2	2	2	2
Give fruits daily	2	2	2	2	2

Detailed Results by Recommendation

Give spinach and potato. (1 mother)

One mother agreed to try giving spinach and potato and reported that the child was taking it and that she would continue. (Note: Although the mother was positive about this feeding practice, it was not evident in the 24-hour recall that she was actually implementing the recommendation.) The mother also said that she would try using a separate plate for the child, but the 24-hour recall showed that she continued to feed the child from her own plate.

Give mango two times a week; give banana; give fruit daily. (4 mothers)

Four mothers tried giving fruit of one type or another on a daily basis or more often. They all reported success in implementing this practice.

- One mother tried and was successful in feeding her child mango twice a week. She said that her constraint was she could not give the fruit daily for economic and logistical reasons.
- One mother tried adding a banana to the child's diet and adopted the practice. At the outset, she thought that banana was heavy for the child's digestion, but she found that her child ate it and nothing happened. She concluded that it was good for his health that she would recommend it to others who think banana is not good for young children.
- Two caregivers tried giving fruits daily. One mother found that the child ate the banana well but not the oranges. She also wanted to continue because she thought that fruits would make her child healthy and strong and active. She didn't feel she could make it available every day, but would buy it when possible.
- Another mother concurred that fruits were good for growth and that they protect a child from illness. She said she would try to give a fruit every day.

Give vegetables daily; give vegetables 1–2 times per week. (6 mothers)

Six mothers/caregivers agreed to try to increase vegetable consumption, and all were able to do so according to their reports.

- One mother reported that she was happy when she saw her child eating the vegetables, and she decided to feed him vegetables three times per week.
- Another mother liked it and was surprised because she thought the child would get sick from eating vegetables. She feared the child would get a stomach ache, but after trying the practice, she found that the child was fine.
- One mother liked that her child ate the carrot and potato, but she was disappointed that he did not eat kale. She will keep trying because she felt it was good for his body.
- Another mother felt that it was also good for her child's health and regretted that she had not tried it earlier. She said that the child liked it and that she will now give it two times per week until her vegetables grow, and then as it is available.
- The other mothers also found that their children liked the vegetables and also reported that they found them easy to prepare.

Give 2 coffee cups of food at each meal; give 1 and 1/2 coffee cups of food at each meal. (2 mothers)

Two mothers tried to increase the amount of food provided. Their comments about this practice included:

- I liked it because he has eaten as much as he can, but I am unhappy when he can't eat it all.
- I was happy when I saw her eating; she seemed to have an improved appetite. It's good for her growth; I will do it daily.

Feed porridge 2 times/day. (1 mother)

One mother tried to feed porridge twice a day, but her comment was that her child did not like it. Nevertheless, she says that she will try every day because she believes it is good for her child.

Give enjera with shiro 2 times/day. (1 mother)

One mother tried increasing the number of times she gave her child enjera with shiro. Her reaction was that the child did not seem comfortable with it because he did not eat it consistently. However, she still responded favorably about the feeding practice during the follow-up visit.

Give barley porridge with oil or butter 2–3 times/day; give porridge with oil instead of Atimit. (2 mothers)

Two mothers agreed to try to improve the quality of the porridge fed to their children. One agreed to add barley and oil but didn't feel confident preparing porridge. She reported that the child ate only two spoonfuls. Another mother liked it, but added that the child liked it if it was warm but not if it was cold. She thought it was good for growth and will give it every day.

Give porridge from teff, peas, or wheat flour with finely chopped vegetables from the garden. (1 mother)

One mother tried a different porridge and found that the child ate it well. She decided to give it every other day; she felt it was good because the child is eating well. She reported that the child had a good appetite for it.

Review of 24-Hour Food Recalls

The 24-hour recall information for this age group showed that a number of improved practices were implemented. As shown in the examples below (Tables 10 and 11) the mothers implemented recommendations that increased the energy available to the child and added fruits and vegetables to the child's diet. This helped to meet the child's micronutrient needs. While not all of the 24-hour recalls showed these improvements, these examples show that a change in practices was accepted and possible for some mothers.

Table 10: Example 1—16-Month-Old Child Diet Before and After Trial

Initial Visit	Amount	Kcal	Iron (mg)	Vit A mcgr	Follow-Up Visit	Amount (g)	Kcal	Iron (mg)	Vit A mcgr
Bread	¼ piece of bread	15	.2	0	Egg cooked with oil	1	50	1.5	0
Tea sugar	1 tsp	20	0	0		1 tsp	45	0	0
Enjera w/Shiro wot and oil	1/8	75	7	0	Enjera w/shiro wot and oil	1/8	75	7	0
						½ tsp	6	.25	0
						½ tsp	22	0	0
	½ tsp	6	.25	0	Enjera w/kale sauce w/oil and butter	1/8	75	7	0
	½ tsp	22	0	0		½ cup	20	.5	250
Mango	½	22	.3	300		1 tsp	45	0	0

					Mango	1	45	.6	600
Bread	½	30	.4	0	Enjera w/shiro wot w/oil	1/8	75	7	0
						½ tsp	22	0	0
						½ tsp	6	.25	0
Total		190	8	300	Total		486	24	850

Table 11: Example 2—14-Month-Old Child Diet Before and After Trial

Initial Visit	Amount	Kcal	Iron (mg)	Vit A mcgr	Follow-Up Visit	Amount	Kcal	Iron (mg)	½
Enjera w/meat wot and oil	1/8	75	7	0	Enjera w/shiro wot w/oil	¼	150	14	0
	½ tsp	5	.2	0		1 tsp	12	.5	0
	½ tsp	22	0	0		1 tsp	45	0	0
Enjera w/shiro wot and oil	1/8	75	7	0	Enjera w/spinach sauce with oil	1/8	75	7	0
	½ tsp	6	.25	0		½ cup	20	.5	250
	½ tsp	22	0	0		½ tsp	22	0	0
Rice w/oil	½ cup	50	0	0	Pastini w/onion and oil	1 cup	130	1.3	0
	½tsp	22	0	0		1 tsp	45	0	0
	½ cup	50	0	0	Pastini w/onion and oil	1 cup	130	1.3	0
						1 tsp	45	0	0
Rice w/oil	½ tsp	22	0	0	Enjera w/shiro wot and oil	1/8	75	7	0
						½ tsp	6	.25	0
						½ tsp	22	0	0
Total		349	14.5	0	Total		777	32	250

Conclusions

All of the mothers with children in the 12–17-month-old age group were willing and able to try new practices to improve complementary feeding for their children. All except one mother liked the new practices which, in general, focused on increasing the quantity of food provided to the child and adding fruits and vegetables to the diet. The recommendations also focused on improving "how" the child was fed, particularly feeding the child from his own bowl/plate rather than hand feeding from the family plate. The purpose of this recommendation is to ensure that the mother is aware of how much the child is being fed. The results of the trials showed some improvement in how mothers were feeding their children. They stopped using bottles for feeding, and some fed the child from his/her own plate/bowl. The 24-hour recalls conducted in the follow-up household visits did not always concur with the mothers' verbal, positive response to the new practices. This may not indicate a failure to adopt the improved practices, as in some cases they were negotiated and limited to implementation one, two, or a few times a week. Overall, the important changes seen in the 24-hour recalls included:

- Improvement in the amount of food (energy) provided, although in many cases, it remained less than the recommended amounts for this age group.
- Consumption of fruits and vegetables among children who previously had none in their diets.

Children 18–24 months

Guiding Principles:

-550 kcal/day—equivalent to about one cup at each meal.
-By 12 months, most young children should be eating "family foods."
-Offer meals three to four times a day, and additional nutritious snacks may be offered one to two times per day.
-Feed a variety of foods: meat, poultry, fish or eggs daily; vitamin A-rich fruits or vegetables daily; diets with adequate fat content; avoid drinks/foods with low nutritive value.

Current Practices

Nineteen mothers had children in the oldest age category—18 to 24 months. All but one of the mothers were available for the two visits. All of the mothers tried two different new practices. The initial household visits showed many of the same inadequate feeding practices as seen in the 12–17-month-old age group; inadequate amounts and a limited variety of foods were provided. Specifically, the feeding practices among children in this age group included the following:

- Most of the children (84.2 percent) were eating family foods. However, three children were still not eating the family meal.
- Many children were being fed bread, tea, and sugar; very low-nutrient-dense foods.
- The amounts of food provided to children were quite small relative to their energy needs.
- About half of the children were fed five or more times per day, which meets the recommended frequency of feeding.
- Only one-quarter (26.3 percent) of the children in this group were consuming any vegetables in the meals they were given.
- None of the children were given fruits.
- Some of the children were eating by themselves from the family tray or being hand fed also from the family tray.
- One child was still using a bottle.

Overview of TIPs

The focus on the recommendations for this age group was to add variety (fruits and vegetables), increase the amount of food provided, and to use a separate plate or bowl for the child. The majority of mothers liked the recommendations and successfully adopted them. The most challenging recommendation was adding vegetables to the child's diet. Two mothers were not successful in implementing the recommendation related to increasing vegetable consumption.

Table 12: Summary of Recommendations to Improve Child Feeding and Mothers' Responses

Recommendation	Offered	Accepted	Tried	Liked	Adopted
Give mango 1–3 times/week	5	5	4	4	5
Give potato and egg 2 times/week	1	1	1	1	1
Give spinach 1–3 times/week	3	3	3	3	3

Give potato and carrot 1–3 times/week	2	2	2	2	2
Use own plate for child's food	3	3	3	3	3
Give fruit 3 times/week	5	4	4	4	4
Give 2 buna cups of food to the child	4	4	4	4	4
Provide kale	2	2	2	2	1
Give vegetables 2 times/week	5	3	3	2	3
Prepare thicker porridge by adding oil and egg	1	1	1	0	1
Give thicker porridge by adding oil and kale	1	1	1	1	1
Give shiro with vegetables and mashed potato with carrot	1	1	1	1	1
Give vegetables 1 time/day	1	1	1	1	1

Detailed Results by Recommendation

Give mango 1–3 times/week; give fruit 3 times/week. (10 mothers)

Ten mothers agreed to try offering fruits at least once and up to several times a week. Most of the mothers were successful and positive about this new practice (8 out of 10); however, two mothers found it difficult for economic reasons—they reported that they couldn't get the money to buy fruit.

- Several mothers reported that their children liked the fruits and that they thought they were good for the child. Most said that it would be difficult to offer fruit on a daily basis because of the need to go to the market and for economic reasons.
- One mother said that her child refused to eat, that she tried two times and that he was not used to eating mango so she tried to be patient. She agreed to continue trying because she thought it was good for his health.
- During one interview, a child asked for mango (mother washed and gave it to child) and said that she would give fruit whenever she can afford it.
- Other mothers were especially convinced that giving fruit was a positive practice. They reported that their children ate the fruit well and that they felt that fruit prevents infection, and that giving fruits is good for the child's health.
- One mother who was skeptical in the beginning (she thought that her child would get sick from the fruit) reported that she gave it to him but nothing happened. She said that the child was happy, it was good for his health, and that she would give fruits depending on availability, but not every day.

Give potato and egg 2 times/week. (1 mother)

One mother agreed to improve the child's diet with potato and egg. She reported that the child ate it happily and that she would continue, but that she could not afford to give it daily.

Give potato and carrot 1–3 times/week. (2 mothers)

Two mothers offered potato and carrot to add diversity to their children's diets. Both of them were pleased with the result. One said "I liked it because she ate it; she is not taking tea or porridge." She also mentioned that she talked to a neighbor who wants to try it with her child.

Give spinach 1–3 times/week; provide kale; give vegetables 2 times/week; give vegetables 1 time/day. (11 mothers)

Eleven of the mothers agreed to try and offer different vegetables to their children. They all approved of the practice, but some experienced difficulty getting the child started on the different foods and with the availability/affordability. Some of the mothers admitted that they had previously been reluctant to offer vegetables, thinking that it was not good for children. Overall, the mothers' reactions were as follows:

- Many mothers reported that their children liked vegetables. They said that they were happy to see their children eating kale and that it was good for them. They said that they could not give it daily, but rather three times per week.
- Some said that it would depend on the season whether they can provide it for their children.
- One mother mentioned that previously she was not giving her child kale, but now he eats it and loves it. The grandmother in the household had warned that she thought it would give him a stomach ache. This did not happen.
- One mother said she could get kale fresh from her garden and that her child liked it. She mentioned that other people say it is not good for the stomach. She reported that she would tell others that this was not the case. Also, she said that when it was not in her garden, she would buy it from the market.
- One mother said "I am happy when I see him eating kale; he has an improved appetite; he ate it even without enjera; he will benefit and gain weight; I will try every other day."

Give shiro with vegetables and mashed potato with carrot. (1 mother)

One mother tried several vegetables and found that the child liked them and ate them well. She reported that she would give it daily. She was convinced by trying the new practice that it was better to add vegetables to their food and that children would eat them if offered.

Use own plate for child's food. (3 mothers)

Three mothers tried to use a separate plate for their child's food. All were successful with this practice and were pleased to be able to know how much the child was eating. They all said that they would recommend this practice to others.

Give 2 buna cups of food to the child. (4 mothers)

Four mothers tried to increase the amount of food provided to the child, and all were pleased with this new practice and made some progress in adopting it. One mother found that her child was fuller and did not ask for the breast as frequently. One mother liked offering more, but didn't like that her child couldn't finish what he was given.

Prepare thicker porridge by adding oil and egg or oil and kale. (2 mothers)

Two mothers focused on improving the thickness (quality) of the porridge they were giving their children. They both reacted favorably to the recommendations. They reported that the child liked the thicker porridge and that it seemed to stay in their stomach longer.

Review of 24-Hour Food Recalls

Among all of the recommendations/practices tried in this age group, adding more variety (fruits and vegetables) and offering larger amounts were the most commonly adopted improvements. As the examples below demonstrate, these recommendations led to significant improvements in the quality and the quantity of the food provided to children.

Table 13: Example 1—22-Month-Old Child Diet Before and After Trial

Initial Visit	Amount	Kcal	Iron (mg)	Vit A mcgr	Follow-Up Visit	Amount (g)	Kcal	Iron (mg)	Vit A mcgr
Bread	1 piece	60			Macaroni cooked w/oil	½ cup	65	.6	0
Tea w/sugar	1 tsp	20	0	0		½tsp	22	0	0
Fir fir (Enjera) cooked with oil	1/16	40	3.5	0	Mango	1	45	.6	600
	1/16 tsp	11	0	0	Enjera w/spinach, oil	1/8	75	7	0
Enjera w/shiro and oil	1/8	75	7	0		½ cup	20	.5	250
	½ tsp	6	.25	0		½ tsp	22	0	0
	½ tsp	22	0	0	Banana	1	85	.5	0
Enjera w/shiro and oil	1/8	75	7	0	Enjera w/spinach and oil	1/8	75	7	0
	1 tsp	6	.25	0		½ cup	20	.5	250
	1 tsp	22	0	0		½ tsp	22	0	0
					Enjera w/shiro and oil	1/8	75	7	0
						½ tsp	6	.25	0
						½ tsp	22	0	0
Total		337	18	0	Total		554	24	1,100

Table 14: Example 2—20-Month-Old Child Diet Before and After Trial

Initial Visit	Amount	Kcal	Iron (mg)	Vit A mcgr	Follow-Up Visit	Amount (g)	Kcal	Iron (mg)	Vit A mcgr
Bread	1	60	.7	0	Bread	1	60	.7	0
Tea w/sugar	1 tsp	20	0	0	Tea w/sugar	1 tsp	20	0	0
Enjera w/shiro and oil	1/8	75	7	0	Spinach cooked w/oil	½ cup	20	.5	250
	½ tsp	6	.25	0		1tsp	45	0	0
	½ tsp	22	0	0	Enjera w/shiro	½	150	14	0

	1/8	75	7	0	and oil	1 tsp	12	.5	0
	½ tsp	6	.25	0		1 tsp	45	0	0
					Mango	1	45	.6	600
						½	150	14	0
						1 tsp	12	.5	0
Enjera w/shiro and oil	½ tsp	22	0	0	Enjera w/shiro and oil	1 tsp	45	0	0
Total		286	15	0	Total		604	31	850

Conclusions

In this age group, the overall recommendations focused on increasing the amount of food and adding to the diversity of the diet by offering fruits and vegetables to children. To help monitor the amount of food provided, it was also recommended that mothers use a separate plate or bowl for the child. Overall, the response to these recommendations was positive. Mothers were supportive of the new practices and convinced that they would be beneficial to their children. However, implementation of all of the new practices was not evident in the 24-hour recalls conducted in the follow-up visits. The improved practices that were most commonly documented for an individual child in the 24-hour recall included: offering larger quantities of food than those offered in the first visit and adding some additional variety in the child's diet through providing a fruit or vegetable as a snack or as part of the meal. These improvements translated into an increase in the micronutrients available through the child's food and in the energy available for growth.

Overall conclusions

Positive Child Feeding Practices

The research shows clearly that it is feasible for mothers to implement a number of positive practices that will improve feeding practices among children under age two. The trials found that mothers were motivated to improve practices, especially when these practices were negotiated with them and tailored to their child's needs. The research also found some positive practices that were in place that could be built upon to improve feeding practices across the various age groups from 6 to 24 months. These positive practices included:

- Mothers were willing and committed to trying something new. Every mother who participated in the trial was open to discussing her child feeding practices with the counselor and was genuinely interested in identifying actions that she could take to improve on her feeding practices.
- All of the mothers were interested in ensuring that their children were healthy and growing well and learning what they could do to ensure good growth.

- The typical meal pattern in the families that participated in the trial was to consume three meals per day. Eating three meals a day is a positive foundation for meeting the frequency of meals for children under two years old.
- In addition to the three family meals, it was not uncommon for children to be offered food in between the family meals. Most children were fed more than three times a day. Most children received some snacks during the day.
- Breastfeeding continues to be an important part of the child's diet. The majority of mothers continued breastfeeding throughout the first two years of the child's life.

Poor Practices that can be Improved

For each age group (6–8 months, 9–11 months, 12–17 months and 18–24 months), the trials showed that many of the current poor feeding practices can be changed if mothers are encouraged and supported in the implementation of new, improved approaches to feeding their children. As the TIPs showed, in many cases the recommendation for a new practice required negotiation with the mother/caregiver. All mothers were not willing to try the same new practice, but all were willing (and almost all were successful) in implementing a practice that they had discussed with the researcher/counselor.

While there were some limitations to what mothers could do because of economic circumstances, in all cases mothers could, and did, manage to try something to improve their child's diet. However, it is likely that some resistance to changing practices persisted as evidenced by the lack of complete alignment between what mothers said they had tried and adopted and what their self-reported 24-hour recall information showed. Nevertheless, the results point to some specific areas that appear to be the most promising for improving complementary child feeding practices. These are:

- Encouraging mothers to provide more than cow's milk—specifically, adding quality complementary foods at six months to the child's diet—is a key recommended practice. Adding cow's milk to the child's diet as a complement to breastfeeding is not uncommon. The milk is often diluted and also often provided through bottle feeding. The trials showed that this recommendation could be achieved by focusing on improving the porridge/special food given to the child or adding different mixtures, such as egg and potato to the child's diet. Discouraging bottle feeding is an important element in the promotion of more positive practices.
- Making porridge thicker by diluting it less with milk (or water) and adding different foods to increase dietary diversity and enhance the quality and increase the energy density of the food is another key practice. In the trials, mothers were willing to try different combinations of foods and to make different, thicker porridge. The practice of giving a thin gruel is common, but the trials showed little resistance to improving the quality of the porridge for the child.
- Adding fruits to the child's diet. Fruit was not a common component of the diets in these families. However, when encouraged to offer fruits, mothers were motivated and successful in adding fruits. Some resistance to adding bananas at an early age was encountered, particularly since other household members (fathers and grandmothers) had doubts that bananas are an appropriate food for young children. Economic factors also affected the frequency with which fruits could be provided to children.

- Trying to introduce vegetables earlier (starting at six months and continuing) to the child's diet. Despite the availability of vegetables among the UGP households, it was not a common practice to give vegetables to children under two. In fact, the conventional wisdom was that green leafy vegetables in particular—spinach, kale—are not appropriate for children under two. However, when mothers tried adding vegetables to the child's diet, they found that their fears of "doing harm" to the child were not justified.
- Increasing the amount of food provided to the young child. Children are fed relatively frequently; however, the amounts of food appear to be quite small relative to the needs. In the trials, mothers were successful in increasing the amount of food provided. Amounts also increased as mothers were able to add fruits and vegetables to the diet.
- A corollary recommendation to increasing the amount of food provided is to use a separate bowl/plate to feed the child. The common practice of hand feeding the child from the family plate and letting the child eat from the family plate at an early age hinders monitoring of how much the child consumes. Mothers who agreed to try feeding their child from a separate plate reported success. In cases where mothers used a separate bowl, it was much easier to monitor what the child was eating.

Appendix 1: The Research Team

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Appendix 2: Assessment and Counseling Guide for Complementary Feeding Practices

Age Group: 6–8 Months

Problem 1: Solid Foods Have Not Been Introduced

Recommendations	Explanations to motivate
1a) Begin feeding the baby porridge made from mitin. Add a little oil and a little salt and make sure that it is the thickness of honey. 1b) If porridge is not available, provide mashed or semi-solid foods, such as potatoes and carrots made in a combination and with a little egg added.	• After 6 months of age, breast milk alone is not enough for most babies; he/she needs other foods in addition to breast milk. • The baby will become accustomed to new foods. • Vegetables are available from your garden.

Problem 2: Solid or Semi-Solid Foods Have Been Introduced, but Without Variety

Recommendations	Explanations to motivate
2a) Give mashed fruits such as banana, mango, avocado, cazamir, other. 2b) Add vegetables or fruits and a little oil to the porridge you are feeding the baby. 2c) Mash other foods prepared for the family, such as carrots or potatoes and give to baby.	• Child will feel satisfied longer, will cry less, and allow mother to do her work. • The baby will enjoy new tastes. • Vegetables are readily available.

Problem 3: Foods Have Been Introduced, but are Very Liquid; Being Fed by Bottle

Recommendations	Explanations to motivate
3a) Stop using a bottle—Begin feeding the baby porridge made from ***mitin***. Add a little oil and a little salt and make sure that it is the thickness of honey. 3b) Feed solid foods that have been mashed, such as banana, carrots, or potato.	• Child will feel satisfied longer, will cry less, and allow mother to do her work. • Child will be able to swallow the food if you take time to feed him/her. • Baby will be sick less often if not using a bottle that is very difficult to clean properly. • The baby will enjoy new tastes.

Problem 4: Solid Foods Have Been Introduced, but the Amount May Not be/or is Not Adequate and/or the Mother is Providing the Food to the Baby From Her Plate or From the Family Plate

Recommendations	Explanations to motivate
4a) Provide the child's food to him/her in a separate bowl/plate. 4b) Offer up to ½ to a full buna cup of food at each meal depending on the size of the cup.	• You will be able to see better how much the baby eats to make sure that he/she is getting enough. • The baby will grow better if he/she is getting the right amount.

Age Group: 9–11 Months

Problem 1: Solid Foods Have Not Been Introduced

Recommendations	Explanations to Motivate
1a) Begin feeding the baby porridge made from mitin. Add a little oil and a little salt and make sure that it is the thickness of honey. 1b) If porridge not available, provide mashed or semi-solid foods, such as potatoes and carrots made in a combination and with a little egg.	• After 6 months of age, breast milk alone is not enough for most babies; he/she needs other foods in addition to breast milk. • The baby will become accustomed to new foods. • Family food is available.

Problem 2: Solid Foods Have Been Introduced, but Without Enough Variety

Recommendations	Explanations to Motivate
2a) Offer all the family foods, including shiro wot with enjera, and especially include vegetables and legumes. Chop and mash foods for baby. 2b) Give mashed fruits such as banana, mango, avocado, cazamir, other. 2c) If feeding mitin porridge, add vegetables, a bit of oil, and a little salt to the baby's porridge.	• Child will feel satisfied longer, will cry less, and allow mother to do her work • The baby will enjoy new tastes. • Family food is readily available.

Problem 3: Solid Foods Have Been Introduced, but are Very Liquid and Being Fed With a Bottle

Recommendations	Explanations to motivate
3a) Stop using a bottle—Begin feeding the baby porridge made from ***mitin.*** Add a little oil and a little salt and make sure that it is the thickness of honey. 3b) Feed solid foods that have been mashed such as banana, carrots, or potato.	• Child will feel satisfied longer, will cry less, and allow mother to do her work. • Child will be able to swallow the food if you take time to feed him/her. • The baby will enjoy new tastes. • Family food is readily available.

Problem 4: Solid Foods Have Been Introduced, but the Amount May Not be/or is Not Adequate and/or the Mother Gives Food to the Baby From Her/Family Plate

Recommendations	Explanations to motivate
4a) Provide the child's food to him/her in a separate bowl/plate. 4b) Offer up 1½ to 2 buna cups of food at each meal depending on the size of the buna cup.	• You will be able to see better how much the baby eats to make sure that he/she is getting enough. • The baby will grow better if he/she is getting the right amount.

Age Group: 12–23 Months

Problem 1: Child Not Eating Family Foods

Recommendations	Explanations to motivate
1a) Begin feeding the baby porridge made from ***mitin***. Add a little oil and a little salt and make sure that it is the thickness of honey. 1b) If porridge is not available, provide mashed or semi-solid foods such as potatoes and carrots made in a combination and with a little egg. 1c) Offer all the family foods, including ***shiro wot*** with ***enjera***, and especially include vegetables and legumes. Chop and mash foods for baby.	• The child is old enough to eat all parts of the family food, such as all vegetables and potatoes. • The child needs a variety of foods to grow well. • Child will feel satisfied longer, will cry less, and allow mother to do her work. • The baby will enjoy new tastes.

Problem 2: Child Eats Family Foods, but Variety or Nutrient Density is Insufficient in Family Meals—Not Regularly Using Vegetables or Other Additions to The Family Staple Food—For Example, Shiro

Recommendations	Explanations to motivate
2a) Add different available vegetables to the child's food, such as carrots, spinach or others from the garden. 2b) Offer the child snacks, such as fruits or boiled vegetables between meals.	• The child needs a variety of foods to grow well. • The child is old enough to eat all of the family foods.

Problem 3: Child is Fed Family Food, but Some Foods are Withheld From the Child

Recommendations	Explanations to motivate
3a) Offer all of the family foods to the child—mash and chop—and avoid spicy foods. 3b) Do not withhold vegetables or other foods that are available—for example, kale, spinach, potatoes, tomatoes, all other vegetables from the garden.	• The child is old enough to eat all parts of the family food, such as all vegetables and potatoes. • The child needs a variety of foods to grow well, including especially brightly colored fruits and vegetables.

Problem 4: Family Foods are Being Given to the Child, but the Amount is Uncertain or Inadequate Because the Child Shares From Mother's/Family Plate

Recommendations	Explanations to motivate
4a) Provide the child's food to him/her in a separate bowl/plate. 4b) Offer up to 2 full cups of food at each meal.	• You will be able to see better how much the baby eats to make sure that he/she is getting enough. • The baby will grow better if he/she is getting the right amount.

Appendix 3: Tally of all Recommendations Offered

Recommendation	Offered	Accepted	Tried	Liked	Adopted
6–8 Months					
Prepare mitin flour and give as porridge to the child; add kale	1	1	1	1	1
Give banana	3	2	2	2	2
Try kale with shiro	1	0	0	0	0
Give porridge with potato, carrots, and kale	1	1	1	1	1
Give porridge with oil and finely chopped kale	1	1	1	1	1
Give mashed banana, avocado, and mango with sugar and lemon	1	1	1	1	1
Feed potato and egg 1 time/day	2	2	2	2	2
Give porridge 1–2 times/day	2	2	2	1	2
9–11 Months					
Give spinach	1	1	1	0	1
Give mitin porridge with milk	1	1	1	1	1
Give thicker porridge by adding oil	1	1	1	1	1
Give fruit (banana, orange, mango)	2	2	2	2	2
Give thicker porridge by adding oil and finely chopped kale	1	1	1	1	1
12–17 Months					
Give spinach and potato	1	1	1	1	1
Give mango 2 times/week	1	1	1	1	1
Give vegetables 1–2 times/week	4	4	4	4	4
Give 2 coffee cups of food at each meal	1	1	1	1	1
Give 1½ coffee cups of food at each meal	1	1	1	1	1
Feed porridge 2 times/day	1	1	1	0	1
Give enjera with shiro 2 times/day	1	1	1	1	1
Give barley porridge with oil or butter 2–3 times/day	1	1	1	0	0
Give porridge from teff, peas, or wheat flour with finely chopped vegetables from the garden	1	1	1	1	1
Give banana	1	1	1	1	1
Give porridge with oil instead of Atimit	1	1	1	1	1
Give vegetables daily	2	2	2	2	2
Give fruits daily	2	2	2	2	2

Recommendation	Offered	Accepted	Tried	Liked	Adopted
18–24 Months					
Give mango 1–3 times/week	5	5	4	4	5
Give potato and egg 2 times/week	1	1	1	1	1
Give spinach 1–3 times/week	3	3	3	3	3
Give potato and carrot 1–3 times/week	2	2	2	2	2
Use own plate for child's food	3	3	3	2	3
Give fruit 3 times/week	5	4	4	4	4
Give 2 buna cups of food to the child	4	4	4	4	4
Provide kale	2	2	2	2	1
Give vegetables 2 times/week	5	3	3	2	3
Prepare thicker porridge by adding oil and egg	1	1	1	0	1
Give thicker porridge instead of Atimit by adding oil and finely chopped kale	1	1	1	1	1
Give shiro with vegetables and mashed potato with carrot	1	1	1	1	1
Give vegetables 1 time/day	1	1	1	1	1

Appendix 4: Energy and Micronutrient Values used in 24-Hour Recall Analysis

Food	Cup or serving equivalent	Approximate Kilocalorie	Iron (mg)	Vit. A (microgram)
Teff Enjera	¼ of whole	150	14.7	negligible
Sugar	1 teaspoon	20	0	0
Wheat bread	1 piece	60	.7	negligible
Wheat Genfo (porridge)	1 buna cup	150	6	negligible
Barley porridge	1 buna cup	150	2.7	0
Potato	1 small	80	1	0
Onion	1 small	40	.5	negligible
Kale (or spinach)	6 leaves=½ cup	20	.5	250
Oil	1 teaspoon	45	0	0
Butter	1 teaspoon	45	negligible	30
Mango	1	45	.6	600
Banana	1	85	.5	0
Orange	1	35	0.8	335
Cow's milk	1 buna cup (75 ml)	60	1	0
Egg	1	50	4	80
Minced meat	1 teaspoon	10	.2	negligible
Rice (cooked)	1 cup	100	6	0
Pastini/macaroni	1 cup	130	1.3	0
Shiro flour	1 tablespoon	35	1.4	negligible