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**BALANCING HEALTH, COST AND
CONVENIENCE IN FEEDING INFANTS AND
YOUNG CHILDREN IN ACCRA**

**A REPORT FROM A FOCUSED ETHNOGRAPHIC STUDY FOR
GAIN FOR THE PURPOSE OF ASSESSING THE FEASIBILITY OF
A NEW COMMERCIAL CEREAL**

Gretel H. Peltó and Margaret Armar-Klemesu

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Executive Summary

The purpose of this study is to examine the potential that Maisoyforte 6-24, a new fortified, non-instant cereal for infants and young children (IYC), which has been proposed by a local Ghanaian company to GAIN for start-up support, would be adopted, particularly by poor urban households. The study report is based on data that were collected with the first draft of the modules of the Focused Ethnographic Study Protocol, which is a component of the APCCF (“Assessing the Potential of a Commercial Complementary Food). The latter is a tool that is being developed to provide GAIN with information that can be used to “assess market opportunities and infant young child feeding behavior for potential GAIN-supported projects.”

Part 1 presents a description of the theoretical framework that was used to guide data collection and a description of the study methodology, including the sampling strategy and socio-economic and demographic characteristics of the sample. The study was conducted in greater Accra, in 8 urban and peri-urban communities representing a range from very poor families to families with more stable, but non-salaried, sources of income. In addition to extensive mixed method interviews with 30 mothers of IYC 6-24 months of age, sub-studies were conducted with street vendors (producers/sellers) of ready-to-eat household foods, owners of kiosks and stores that sell IYC food products, and crèches where IYC are taken for care when mothers work outside the home and do not take their infants with them.

Part 2 presents the results, organized into sections on 1) current IYC feeding practices; 2) current economic and socio-cultural conditions in households, and 3) marketing avenues for complementary foods, with an emphasis on cereal foods.

The results of qualitative 24 hour recalls collected from respondents show that cereal-based foods in the form of instant cereals, porridges, and as traditional family staples consumed with soup and stews predominate. What is particularly striking is that more than a third of the IYC consumed a fortified, instant porridge, produced by a multi-national company and sold, ready to mix with water or milk in every community in our study. Fresh fruits and vegetables are not heavily featured in the children’s diets and micronutrient supplementation with commercial preparations is not a routine practice, being used only when children are seen as suffering from poor appetites and are defined by their mothers as problematic eaters.

Households are spending a substantial portion of their household food budget on foods for their infants and young children, approximately 20-25% of the total food budget. Notably, there is relatively little difference across economic categories in the amount they estimate is spent on IYC food, and across all economic categories, the use of the instant, fortified cereal appears to be about the same. A typical pattern is to alternate this cereal with less expensive, more traditional porridges, many of which are also purchased ready-to-eat from street sellers.

Several data collection techniques were used to examine beliefs and values as well as social factors that affect mothers' decisions about what to feed their infants and young children. These provide strong evidence of cultural consensus concerning the perceived relative healthiness of specific food items, and the importance of health as a significant determinant of what mothers feed their IYC. At the same time, women readily point to cost of foods and the challenge of having sufficient money to feed their families as a primary concern. The third factor that emerged from the interviews is the pervasive, if ambivalent, matter of convenience. This global concept involves several different issues related to time (the amount of time required to obtain and prepare foods), issues of distance (ease or difficulty of obtaining ingredients and foods), issues of preparation in relation to cooking and storage, and cash outlay (small purchases of ready-to-eat foods, including cereal packets) versus provisions in larger packages. (It appears that stores who cater to better-off households sell more large packages, while those with the poorest customers are selling in small quantities.) Our findings suggest that mothers are balancing these three factors - health, cost and convenience - in a complex balancing act, the outcome of which is reflected in what their infants and young children are consuming.

In addition to these primary factors, the influence of other people, particularly husbands, female relatives and health care professionals, also play roles, to varying degrees.

The sub-study of street sellers of prepared foods showed that the commonest and most acceptable ready-to-eat infant cereal being prepared to sell on the streets of Accra is *hausa koko* (millet porridge), which is sold at a very low price. Most sellers were reluctant to consider selling a prepared version of a fortified cereal for fear that it would reduce their profit margin and would be too expensive for families to buy. Similarly, the kiosk and small store owners in poor neighborhoods felt that a cereal that required cooking (resembling products already on the market) would not be viable. On the other hand, they confirmed that the small packets of the instant, fortified cereal sold well. The crèche owners discussed the various reasons why they do not provide breakfast for the children in their charge, and it is unlikely that this would be a potential source of support for a new product.

Part 3 of the report addresses 3 questions we believe are important for making decisions concerning a new, commercial-source, fortified complementary cereal: 1) Is there a dietary niche for a new IYC cereal? 2) Is there a marketing niche for a fortified cereal? and 3) Is there a community niche for a non-instant fortified cereal sold in larger packets?

1) Is there a dietary niche for a new IYC cereal?

For infants the answer is an unequivocal yes, but only if the cereal is as good as, or better than the existing alternatives. The practice of giving infants cereal as an early food to complement breastmilk is deeply embedded in the culture. From the perspective of

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behavior change, introducing a new cereal would not require a totally new kind of behavior, it only requires a change in the specific cereal the household is buying.

2) Is there a marketing niche for a fortified cereal?

There is clearly a niche for an **instant** cereal sold in serving-size packages. Currently one of the six types of cereals that is being fed to infants across all economic categories is a commercial, instant, fortified cereal, produced by a multi-national company. This is available in small packets, as well as larger quantities. Of all of the cereals that poor urban women are using, this cereal is the most desirable. It is desirable because:

- 1) It is perceived to be very nutritious, and healthiness is the value mothers care most about.
- 2) It is easy to obtain because it is sold by small neighborhood kiosks and no one has to take motorized transportation to buy it.
- 3) It is convenient because it does not have to be cooked.
- 4) Most infants are perceived as accepting it readily, and child acceptance is a major concern for mothers.
- 5) Although it is costly (on a per weight basis), it can be purchased in such small quantities (serving size packets) that mothers do not have to have a lot of cash at hand to buy it.

3) Is there a community niche for a non-instant fortified cereal sold in larger sold in larger packages?

It is unlikely that a non-instant product would be successful in the poor urban market, where use of commercial products of this type appears to be limited and where women tend to make porridges (generically referred to as “weanimix” or “tom brown”) from basic ingredients that they purchase and prepare “from scratch.” Judging from the fact that the more up-scale markets are carrying and selling tom brown types of cereals, it might be more competitive in areas of more affluent families. Women, in general, are attuned to the nutritional benefits of adding additional ingredients to a basic grain cereal, and they believe that a home improved cereal is as nutritious as the fortified commercial cereal. However, it has a number of negative features:

1. The ingredients are time consuming to acquire.
2. The cereal is time-consuming to make.
3. The cereal is viewed as relatively expensive, although less expensive than commercially fortified, instant cereal.

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Any attempt to add a new, non-instant cereal into this marketing niche would face several problems:

- 1) It is unlikely that it will be attractive to the owners of the small kiosks, as their experiences with selling tom brown have not been positive; therefore it will not have the advantage of ready availability;
- 2) A cereal that requires cooking will have to be prepared in larger quantities and stored for later use. If the expectation is that it will be consumed by the household, not just by the infant, it will have to be priced at the same level as the other cereals that are consumed by the household, and this will not be possible;
- 3) It is unlikely that it will be taken up by the army of koko sellers, who are filling the marketing niche of providing households with cheap breakfast food, and thereby relieving women of the necessity of preparing a morning cereal for the family. The koko sellers marketing strategy is to buy cheap ingredients and sell their product very cheaply.
- 4) It is unlikely that the product would be used by the crèches, as they are mainly catering to children after the age at which complementary foods are considered appropriate.

In conclusion, the proposed non-instant Mysoyforte 6-24 is unlikely to be successful. However, it is probable that an instant, fortified cereal, sold in small packets, and at a lower price than the current multi-national product, and with equal organoleptic properties, could, if effectively promoted, be a viable, commercial success.

PART I: INTRODUCTION, THEORY AND METHODS

INTRODUCTION

This report presents the results of an ethnographic study that was undertaken on behalf of GAIN to “help them make an investment decision” with respect to “the Yedent project in Ghana.” Yedent, a Ghanaian company, has proposed the development of a new cereal product, under the working name “Maisoyforte 6-24.” Maisoyforte 6-24 is envisioned as a vitamin-mineral fortified cereal based on a maize-soy blend. It is to be mixed with water or milk and cooked for a short period of time to produce a soft, smooth porridge that would be suitable for infants beginning at 6 months of age. The purpose of this study is to examine the potential that a product of this nature – a new cereal for infants and young children – would be adopted, particularly by poor urban households. In our examination of this question we have assumed that a social marketing campaign would be a necessary accompaniment to its introduction.

The study report is based on data that were collected with the first draft of the modules of the Focused Ethnographic Study Protocol, which is a component of the APCCF (“Assessing the Potential of a Commercial Complementary Food). The latter is a tool that is being developed to provide GAIN with information that can be used to “assess market opportunities and caregiver purchasing and infant young child feeding behavior for potential GAIN-supported projects.”

The report is organized three parts.

Part 1. After this introduction, the second section of Part 1 is a description of the theoretical framework that was used to guide data collection. It also includes a discussion of focused ethnographic research and its role as an approach for assessing the potential of a new infant feeding product. It continues with a section describing the methodology of the study and characteristics of the sample. (For a longer description of the method the reader is referred to the manual, *A Focused Ethnographic Study for APCCF*).

Part II presents the results of the study. The presentation is organized with the following fundamental question in mind: “Is there a need for a new, commercial cereal, and will Maisoyforte 6-24 meet that need?” Three basic questions have to be considered:

1. Are infants and young children (hereafter “IYC” or “children”) being adequately fed now?
2. Are IYC currently meeting their micronutrient needs through supplements that are routinely given along with food?
3. Could a nutrient-enhanced, fortified cereal potentially meet the gap between current practices and nutritional requirements?

It is essential to note two critical features of our approach to these questions:

(i) Our examination of Questions 1 and 2 is qualitative in nature and is designed to set the stage for Question 3. Extensive quantitative data relevant to questions 1 and 2 are already available. Thus, we examine them briefly here within the context of our interviews with mothers in order to get a general picture of current urban practices.

(ii) Our examination of Question 3 is social and behavioral. We do **not** address fundamental biological issues, which must also be assessed in order to make a determination about whether the new product that is envisioned by Yedent is both safe and efficacious. With respect to safety, there are two, separate issues: safety from the perspective of toxicity, and microbiological safety at the level of the household (issues of hygiene and sanitation). Biological efficacy involves issues absorption and utilization within the larger context of infant and young child health in the population. Such biological and clinical assessments are essential to determine whether, and the extent to which, adoption of Maisoyforte 6-24 would have a positive impact on the nutrition and health of Ghanaian children.

To answer the basic questions above in relation to an assessment of Maisoyforte 6-24 we focused our data collection on the following topics:

1. Current infant and young children feeding practices

These data are necessary to determine whether there is a “dietary niche” for a fortified, commercial cereal. If infants are already receiving cereals that are specially prepared for them, there is a clear dietary niche and adoption of a new cereal requires only that caregivers substitute a new product/preparation for the one(s) they are currently using. If they are not, the challenges are much greater and require changes in culture and behavior.

2. Current economic and socio-cultural conditions in households

These data include household expenditures for food for IYC, attitudes and values about spending scarce economic resources to buy or make special foods for children, caregiving beliefs and practices related to nutrition, as well as acquisition and preparation of foods; and sources of influence about IYC feeding. Such information is vital for determining whether caregivers would be receptive to a new cereal and to identify the relationships among factors that facilitate and constrain adoption, including economic constraints.

3. Current marketing venues for complementary foods for infants and young children, with an emphasis on cereal foods

The purpose of obtaining this information is to assess the potential outlets for reaching households that a new product could expect to exploit.

Part III presents the implications of the findings for GAIN decision-making.

II. THE THEORETICAL FRAMEWORK FOR THE STUDY

Deciding what is important to include in the study

All research, whether it is testing a hypothesis in a laboratory or conducting a study to determine the marketing potential of a product, rests on a theoretical foundation. This foundation includes a set of assumptions about the characteristics of the phenomenon that is being investigated, and “how the world works” in relation to these characteristics. Research is always improved when the investigators make these assumptions explicit by constructing a theoretical framework for the study because this helps to ensure that critical factors are examined. The topic of infant and young child feeding is vast, and potentially many different aspects could be relevant to assessing the potential for a new complementary food. Collecting information on all of these aspects would be very time consuming and is not practical. Therefore, it is particularly important to have a theoretical framework to guide a focused ethnographic study.

2. A cultural-ecological framework for Infant and Young Child Feeding: Explaining practices, behaviors, and beliefs from a household perspective

The framework for the Maisoyforte study in Ghana is a holistic one, which is derived from the cultural-ecological model from nutritional anthropology. The diagram below was initially designed to describe the determinants of nutritional status anywhere in the world

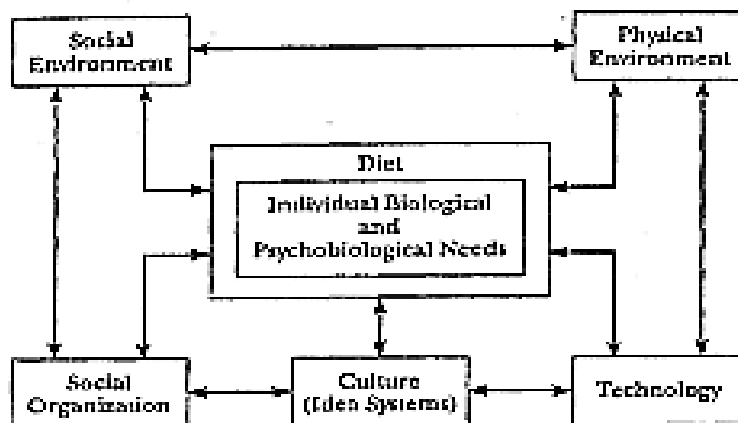


Figure 1. An ecological model of food and nutrition
(Source: Redman, from Jansen, Kinadel, and Peltz, 1980.)

In the general model the box labeled “physical environment” refers to such factors as climate, water resources, soil characteristics, transportation networks, and other features that establish the conditions for food procurement and production. When the focus is at the societal level, as it is in this general model, the box called “social environment” refers to the social systems that lie outside the society of concern. For example, in small-scale, rural societies, where most food production and consumption is localized, the existence of other societies who are introducing new foods into the community or taking away crops or other food products to external markets can have profound, often negative, effects on diet. “Social organization” encompasses a large set of factors at multiple levels within the social group that is the focus of analysis. These include the economic and social structure of households, social institutions, and political and economic structures that relate to the production, distribution and consumption of food. “Technology” refers to the entire range of tools, techniques and equipment that are involved in the production, distribution, preparation and consumption of food. The box labeled “culture” encompasses all the ideas (including beliefs and values) that affect and relate to the acquisition, preparation and consumption of food. All of the components of the model are inter-related and the arrows are a simplification, intended to indicate the concept of inter-relationships.

Applying the model to IYCF

The focus of our study is the household, not a society. Thus, using the model as a guideline for deciding what needs to be included in our IYC study requires specification of the critical features in each of the components of the model from the perspective of household management. Drawing from the international literature on IYC feeding, as well as personal experience, we specified the areas of investigation as follows:

- Physical Environment: venues where IYC foods are potentially available to households, and the means of access to these venues.
- Social Environment: Sources and types of foods and ingredients that are Produced outside the household; also sources of support outside the household for childcare related to food intake (e.g. medical, crèches, relatives)
- Social Organization: household economic conditions; household economic management (focus on food expenditures), childcare behaviors related to food and nutrition; household composition
- Technology: facilities available in the household for food preparation and storage (e.g. cooking stoves, refrigeration)
- Culture: ideas, values, and knowledge related to IYC feeding and care

The specific items listed above are exemplary, rather than exhaustive. For each of these areas we relied on exploratory, open-ended discussions with respondents to fill out the picture of relevant factors and to collect data about them. The interview modules in the FES are comprised of questions to obtain information on each of these sectors.

The rationale for a focused ethnographic approach

Focused ethnography is a research approach that uses data collection methods taken from classic anthropological techniques (in-depth, open-ended interviewing and observations), cognitive mapping techniques, and survey research:

1. Classic ethnography is based on repeated, in-depth interviews with a relatively small number of individuals, typically exploring a variety of different subjects, and augmented by observation. Archival materials are often used to complement the data that are collected from informants. Text analysis is the fundamental method to derive generalizations and usually has a quantitative component that consists of counting the occurrence of particular themes and the contexts in which they occur.

2. Cognitive mapping techniques, which were initially developed in psychology, are now widely used across the social sciences, including anthropology, communications, and marketing. They involve the use of structured tasks, which take a number of different forms, including responses on Likert-like scales, as well as sorting, ranking and rating arrays of items (e.g. foods; values; beliefs). These techniques can be used to describe the cultural and psychological characteristics of an individual or data can be collected from many individuals in order to describe a population.

3. Survey research is an efficient and popular method for collecting data from a sample of people when the goal of the study is to understand the distribution of traits, characteristics, and conditions within a population, and the statistical inter-relationships among these traits. In addition to describing the mean values (or “central tendencies”) in the characteristics of concern, a survey permits one to determine what proportions of the population are higher or lower than cut-off points, and by how much. In survey research all the subjects are interviewed with a structured questionnaire that uses predefined terms and concepts.

Survey questions are based on the assumption that the people who are answering the questions impute the same meanings and referents to words that the people who design the survey have. Ethnographic studies do not begin with the assumption that meanings are shared. They rely on the exchanges that occur during the interviews to reveal discordance in meanings. An example of why it would be incorrect to assume that respondents are interpreting a question in the same way as the investigators can be found in this report on p. 27. Here we report an exchange between one of our interviewers and a respondent in which it emerged that the respondent did not regard “fruit” as a “food.” Hence any question that asked her to provide information about “foods” (e.g. “What

foods did you give your child yesterday?”) would not have included fruits. (Other evidence in our data to suggest that this respondent was not unique in classifying fruits as a non-food.)

In addition to improving the quality of the data that are collected from respondents, qualitative interviews that are conducted by investigators who are sensitive to the potential significance of information from respondents provide a means of discovering and examining a specific topic that has not been initially included in the questioning framework. For example, we did not initially ask about the concept of “vitamins,” but once we saw that this word was mentioned by some respondents, we examined it more systematically. This possibility of expanding the questioning frame as research progresses is an important benefit of ethnography.

Focused ethnography (FES) is an efficient and effective approach when the purpose of a study is to obtain a picture of the situation with respect to a particular issue or topic in a community, a neighborhood, an organization, or even a larger geopolitical unit. An FES is a study that is designed to answer a specific set of questions that are required by an agency, by policy-makers, by program planners, or by project implementation teams in order to make decisions about future actions with respect to a social, public health or nutrition intervention. Primary data are collected to obtain information on conditions and behaviors in the population that are important for various purposes, including: (i) planning interventions that are appropriate for local conditions; (ii) identifying potential bottle-necks that are likely to affect the success of an intervention; (iii) designing and developing communication strategies and content (especially for behavioral change communication (BCC)); and/or (iv) deciding whether an proposed intervention is likely to be feasible or effective in a given environment. Focused ethnography should be complemented by a larger survey when it is necessary to have quantitative data to describe the proportions of individuals in a population in relation to the variables of concern. For example if one needs to quantify the specific levels of economic, social or biological impact of an intervention, focused ethnography provides essential information for the design of the evaluation, but it cannot be used to answer statistical questions of “how much,” “how many,” etc. However, FES alone is adequate and sufficient for many types of decision-making, as this report illustrates.

III. THE STUDY METHODOLOGY

1. The caregiver respondents

The study was conducted in the greater Accra metropolitan area in 8 different residential areas representing a wide range of conditions from dense urban conditions to peri-urban areas. Some of the areas have a long history, while others are recently established. Some are populated with households who have been in Accra for many years. Others are comprised mainly of migrants from rural areas. Some are home to families that are relatively well-off; others are composed mainly of families that are very poor. Together they capture a wide cross-section of Accra society.

Recruiting respondents according to IYC age and household economic status

In recent years the designation of infants and young children (IYC) has come to refer to children 6-24 months of age. This is the theoretical period of complementary feeding when breast milk alone is not enough to meet nutritional needs and most children do not have the capacity to consume an unmodified adult diet. However, the biological and behavioral variability across the 18 months of IYC status is enormous, and for many purposes it is essential to break it down into smaller age categories. We have subdivided the age range (6-24 months) into four age divisions: 6-8 months; 9-12 months; 13-18 months and 19-24 months. Respondents could then be recruited in relation to these four age categories.

The proposal from Yedent, which followed GAIN guidelines concerning the population to which a new product would be directed, specified a desire to reach households in categories C to D of the World Resources Institute (WRI) and International Finance Corporation (IFC)'s economic classification system. The expectation was that it would not be affordable by the very poorest segment of Ghanaian society, but could be purchased by urban and peri-urban households living in poverty who fall into categories C and D. At the same time, it is also useful to know whether less poor households would find the product attractive. This is important not only to estimate the potential market, but also to determine whether there are major differences in IYC practices and beliefs between the poor and the better-off. A product that is seen as intended only for the poor rapidly becomes devalued and even stigmatized as "poor people's food."

Thus, in order to provide GAIN with useful information, the FES needed to be conducted with respondents who represent a range of economic conditions. Developing a method for identifying respondents' economic status in relation to the WRI categories posed a major challenge. The operational definition used by the WRI requires extensive income and expenditure data from households. In a focused ethnographic study it is not necessary or efficient to collect extensive data as a prelude to recruiting respondents. We

investigated several options to use for the Ghana study and found a solution with the Ghana Living Standards Survey (GLSS). This instrument, which has been widely applied in Ghana, includes a simple tool for measuring SES using indicators that are readily collected and analyzed. Their composite scale scores (LSM scores) have been reported in relation to household food expenditures, which is a major component of the WRI classification scheme. We examined the reported data on the distribution of LSM scores in relation to food expenditure and determined that LSM scores would be an adequate proxy for the WRI categories.

To recruit respondents for our study we laid out a grid with the combination of age and LSM categories. Potential respondents in the 8 communities were approached first with respect to the age of their child. Then the LSM screening questions were asked. Using this method to identify respondents a total of 30 caregivers (mothers) were recruited for the study. Table 1 shows some of the demographic characteristics of the sample, including child age. Table 2 provides information on the distribution of LSM status of the sample.

Table 1. Distribution of selected demographic characteristics of respondents

Characteristics	Number of respondents
Age of index child (months)	
6-8	7
9-12	11
13-18	7
19-24	5
Age of respondents (years)	
<20	1
20-29	10
30-39	19
Total household size	
2	2
3-4	9
5-6	13
7-8	3
>8	3
Number of children of respondent	
1	5
2-3	12
4-5	11
6	2
Number of children under six in household	
1	8
2	17
3	4
4	1

Table 2. Distribution of LSM status

Living Standards Measure	
LSM Score	No. of Respondents
3	4
4	3
5	6
6	5
7	3
8	5
9	2
10	2

3. Data collection

The data for the study in this report were collected with modules from the Focused Ethnographic Study manual of the APCCF (“Assessing the Potential of a Commercial Complementary Food”) tool. Interviews were collected in the respondent’s language, mainly in Twi or Ga. With permission from the respondent’s these were tape recorded. Although respondents spoke in their own local language, they also used English words from time to time over the course of the interview. This is a common occurrence in urban Ghana when local languages are being spoken. Two of the respondents were better able to express themselves in English, so their interviews were conducted in a mix of their local language and English.

All of the respondents were interviewed with a core set of modules, which included socio-economic and demographic data, child feeding practices, respondents’ ratings of foods, etc. Some modules were applied only in subsets of respondents because we needed only a few informants to obtain an adequate picture. For example, the free listing module, which yields information on types of foods that are fed to infants, was applied only with the first respondents. With a subset of respondents we applied some specific modules to provide insights about the wider context in which infant feeding beliefs and behaviors are imbedded. This subset of respondents (N=12) is referred to in the presentation of findings as the “care-focus group.”

4. Data analysis

Data from the modules were entered into Excel sheets. The tapes from the interviews were transcribed and translated. These records, together with interviewers’ notes taken during the discussions with respondents, provided the corpus of data for text analysis. The small size of the database made it feasible to work without using computer tools to facilitate coding. We worked directly with transcripts, creating files of statements on specific topics, as required. With small samples (30 or less depending on the module) and hand tabulation, simple descriptive analysis was possible without the assistance of a statistical program.

5. The sub-study of koko sellers

The objectives of this sub-study were:

1. To find out what ready-to-eat cereals for IYC infants were being prepared and sold by independent, local community vendors (“street sellers”)
2. To assess the viability of introducing a new product (e.g. Maisoyforte 6-24) through street sellers as another ready-to eat-cereal
3. To identify the challenges koko sellers face and what they would be willing to do with respect to modification of their current practices.

Sample and data collection

In each of the 8 study communities, a koko seller was interviewed using a semi-structured interview guide. Out of the 8 koko sellers interviewed, only one sold “white koko” and most of them (7) sold Hausa koko (millet porridge)

6. The sub-study of sale outlets for IYC cereals

The purposes of this sub-study were:

1. To inventory the types and characteristics of infant cereals that are available for sale in the community
2. To obtain sellers views about what influences mothers’ decisions about what to feed their IYC given the options available in the community
3. To examine sellers’ awareness and knowledge of the nutritional content of the various infant cereals they sell.

Sample and data collection

This sub-study was conducted in the same communities from which respondents and koko sellers were recruited. Based on transect walks across these communities, the study team identified 3 categories of sale points for infant cereal products:

- 1) Small kiosks and table top outlets.
- 2) Medium size container shops
- 3) Large stores (supermarkets)

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A total of seven sales outlets representing each of these categories were then selected for observation and interviews. Data were collected with a semi-structured open-ended interview guide. Interviewers also used an inventory form to record the various cereals in the shops.

7. The Crèche sub-study

The purpose of this sub-study was to assess the consumption of cereals particularly weanimix, in crèches/nursery schools. In-depth, exploratory interviews were conducted with proprietors and matrons of selected crèches /nursery schools in the Accra metropolitan area.

Five IYCs in the respondent sample attended crèches. We visited each of the crèches and obtained an interview with the owner or matron. All 5 crèches had been established between the years 2002 and 2004. Although they were originally started exclusively for IYC care, only one is still exclusively a crèche. Four of the five have now put in place (or are in the process of putting in place) primary school sections so that the children can remain in the institution to continue their education, at least up to the basic level.

PART II. THE FINDINGS FROM THE STUDY

SECTION 1 CURRENT INFANT AND YOUNG CHILD FEEDING PRACTICES

A. Identifying complementary foods in the community: results of the “Free Listing” exercise

We used an ethnographic technique known as “free listing” to elicit an emic inventory of the foods that are considered appropriate for infants and children. The technical term, *emic*, is used in anthropology to refer to “the insider’s perspective,” as contrasted with the perspective of the investigator. In this case, we wanted to know what foods to include in our examination of IYC feeding practices. We needed a list of items that could be included in other cognitive mapping exercises (e.g. ratings of foods in relation to various value dimensions, such as “healthiness,” “cost,” etc.

With respondents who are the mothers of infants 6 to 8 months old, we opened the free listing exercise with a general question: *“I would like to know about the kinds of foods that families normally give to their babies when they are about 6-8 months old and starting to eat something in addition to breast milk. As you think about that you could start by listing the foods your own baby gets.”* Follow-up questions probed for foods the respondent doesn’t give but that other mothers might give. Modifications to this basic question were made to obtain lists about foods for other age categories, up to 24 months.

Table 3 shows the results of the free listing exercise.

The list of foods in Table 3 is not a definitive list of all the foods that children in urban Ghana receive. Rather, we interpret these results as an indicator of the foods that are most salient from mothers’ perspectives. It is instructive to note that 4 porridges (koko, weanimix/tom brown, Cerelac and oats) appear on this list. Whilst these are the first items that come to mind when one asks women to think about IYC foods, there is a pattern of linking of specific foods with age. Porridges mostly received first mentions for the 6 – 8 months old infants whilst for the older infants especially those in the 19 – 24 month age group what was collectively referred to as family foods received first mention whilst porridges were mostly mentioned after probing or prompting . This is an indication that certain foods are viewed as more appropriate for specific age groups. Thus as the child grows older, family foods become more important in the diet.

Table 3. Spontaneously elicited IYC foods (12 respondents)

Food item	Description
Koko	Traditional fermented maize porridge; also referred to as white koko
Cerelac	Fortified instant cereal manufactured by a multi-national company; made from a variety of grains (maize, wheat, rice) and flavours (fruits, honey)
Lactogen/SMA etc.	
Weanimix/tom brown	Generic names for a variety of cereal/legume mixes prepared as porridges
Oats	
Hausa koko	Fermented millet porridge
<i>Banku</i> * with okra soup/stew	fermented maize and cassava dough cooked into thick paste/dumpling
Mpotompoto	Pottage prepared from yam, cocoyam, vegetables, powdered/flaked fish and palm oil
<i>Rice balls</i> with groundnut soup	Soft boiled rice, mashed and rolled into balls
<i>Tuo zaafi</i> with ayoyo (leafy veg.) soup	Maize/cassava flour cooked into very thick porridge-like paste
Mashed yam with palm oil/margarine	Mashed boiled yam
<i>Waayke</i> with stew	Rice and beans cooked together
Boiled yam/plantain/rice with kontomire (leafy veg.) stew	
<i>Fufu</i> with soup	Boiled cassava and unripe plantain pounded into sticky dough-like paste
Tea, Milo	
Ice/mashed <i>kenkey</i>	Steamed dumpling (made from fermented maize dough) mashed in cold water and served with sugar and milk (optional)
Bread	
Biscuits	
Fruits	

* Foods in italics are described; all soups and stews contain basic ingredients (i.e tomatoes, onions and chili (pepper) and will contain additional ingredients implicit in the name.

In addition to the foods listed above, we generated a larger list of IYC foods, based

in part on the foods that women discussed during interviews in the pilot testing phase, as well as foods that were identified in community observations. Table 4 shows the cereals that are prepared in the form of porridges for infants. Table 5 lists non-porridge foods. We used the full list of items in Tables 4 and 5 in some of the cognitive mapping exercises discussed below.

Table 4 IYC Foods Given as Porridges

Porridges	
<i>Name</i>	<i>Description</i>
Koko	Traditional fermented maize porridge; also referred to as white koko; usually made at home
Hausa koko	Fermented millet porridge, usually purchased ready-to-eat from local food vendors
Cerelac	Fortified instant, manufactured by a multi-national company. Mixed with water or milk. It is made from a variety of grains and flavors.
Home-processed tom brown	Tom brown is a generic name for a variety of cereals prepared as porridges. Home processed is usually made from roasted maize flour.
Enriched tom brown/weanimix/ prepared at home or purchased from health centers	Weanimix is used interchangeably with tom brown for cereals prepared from maize, soya beans and groundnuts roasted and milled together into composite flour; prepared as porridge.
Commercial (branded) tom brown	Processed single grain, or multi-grain cereals/legume composite flours; prepared as porridge.

Table 5. Non -porridge IYC Foods*

Infant Formula
Mpotompoto
Mashed Yam
Rice balls
Tuo zaafi and ayoyo
Banku and Okra Stew
Waakye and stew
Fried ripe plantain and bean stew
Cassava and plantain fufu with soup
Boiled rice and shredded beef stew
Kontomire (leafy veg.) stew
Plantain and kontomire
Yam and kontomire stew
Jollof rice (rice pilaf)

* For some of the cognitive mapping exercises we used a more expanded list with variations on the basic “template.” For example, we gave mothers options of boiled plantain, yam and rice and kontomire stew.

B. Feeding practices of IYC: foods consumed in the previous 24 hour period

The use of the phrase “complementary feeding” to refer to feeding practices during the period of 6 to 24 months is intended to remind us that foods given to infants and young children are intended to be “complementary” to breast milk. All of the children in our sample were breastfed at birth. Twenty-two (73%) of the 30 children were still breastfed at the time of the interview. All 7 children in the 6 -8 month age group were breastfed, while 9 (82%) and 6 (50%) of those in the 9 – 12 and 13 – 24 month groups, respectively, were breastfed. Mothers were generally not able to estimate the number of times they breastfed their child in a day and most expressed the idea that they breastfed an uncountable number of times, even with the older children.

The number of times complementary foods were fed to the child (feedings) was derived from the 24 hour food record (Table 6). Here we see 2 of the 7 infants in the 6 – 8 months age group were fed less than the recommended twice a day. Eight of 11 in the 9 – 12 month age group and all of the 12 in the 13 – 24 month age group were fed the recommended minimum of three times a day.

Cereal-based foods in the form of instant cereals, porridges, and as traditional family staples consumed with soup and stews predominate. What is particularly striking in these food records is that 11 of the 30 IYC received Cerelac, the fortified, instant porridge that is sold, ready to mix with water or milk in every community in our study. (Section 3 below describes the conditions in the physical and social environment with respect to the availability of IYC porridges.) The number of times in a day that these eleven children ate Cerelac varies from once a day to three times a day.

Koko and Hausa koko are also very common in the food records. What is surprisingly low is the number of times that weanimix or tom brown appears in the recalls.

Infants are more likely to be given porridge or instant cereal as the first meal of the day, whereas young children (a year and above) are typically consuming tea, bread or a chocolate drink (Milo) as the first food in the morning. Based on the meals that follow later in the day for these children, it is probable that the latter pattern is an indicator that the children are already eating family foods, as these are breakfast foods for the family.

There is a notable absence of fresh fruit in the records. While this may reflect actual dietary intake, we suspect that respondents may have failed to report them because they do not regard them as food. In fact, many of the women we interviewed said that they felt children should be given fruit, particularly fruit juices because they are health promoting.

Table 6. IYC food intake records for the day prior to the interview

Age	BF	Feed 1	Feed 2	Feed 3	Feed 4
6	yes	Hausa koko	Hausa koko		
6	yes	Koko			
7	yes	banku+stew			
7	yes	Koko	rice and egg stew	banku+egg stew	Cerelac
7	yes	mashed kenkey	mpotompoto		
7	yes	Cerelac	mpotompoto		
7	yes	Koko + soya	banku+soya+okro stew	Koko +soya	
9	no	Hausa koko	cocoyam porridge	mashed yam+gardeneegg stew	
9	yes	Koko	Cerelac	Koko	
9	Yes	Koko	Koko		
9	Yes	Cerelac	Cerelac	Cerelac	
9	yes	Cerelac			
9	no	tom brown	rice+stew	mashed kenkey+milk	Hausa koko+milk
10	yes	mashed kenkey			
10	yes	weanimix	mpotompoto	Cerelac	banku+stew
10	yes	Koko	tu zaafi+ayoyo soup	Koko	
11	yes	Cerelac	Rice + stew	Banku + okro	Cerelac
12	yes	tea+ bread	wheat cereal	Cerelac	fried spiced plantain
13	yes	Cerelac	rice and stew	banku+okro	Cerelac
15	yes	Hausakoko	Cerelac	mashed kenkey	mpotompoto
15	yes	Milo+bread	jollof rice	indomie	
16	Yes	Milo + bread	TZ + ayoyo	Mashed Kenkey	
16	yes	tea+bread+fried egg	tea+bread+egg	tea+bread+egg	banku+palm soup
18	yes	rice porridge + bread	rice and stew	fufu + palm nut soup	
18	no	Milo	Cerelac	rice +stew	Cerelac
18	yes	Milo+fried egg, sausage	Cerelac	banku+okro soup	Jollof rice + vegetables
20	no	Milo	weanimix+nido	rice+palava sauce	Nutrolac
20	no	tea	rice + stew	banku+okro soup	kenkey+groundnut soup
21	no	Milo + bread	banku+stew	Akple (banku) + okro	
22	no	cold Milo	banku + okro	fried yam+sausage	rice+stew+sausage
24	no	bread	Hausa koko	Rice + stew	Jollof rice

SECTION 2. ASPECTS OF THE CURRENT SOCIAL, ECONOMIC AND CULTURAL ENVIRONMENT THAT WOULD AFFECT ADOPTION OF A NEW, FORTIFIED COMMERCIAL CEREAL

As discussed in the theoretical section of the introduction, this study is based on the assumption that a number of factors affect caregivers' interest, willingness and ability to adopt the use of a fortified cereal. In the first section of Part II we examined the situation in urban Accra from the perspective of food practices. In this section we look at other social, economic and cultural features that would influence the patterns and process of adoption. Sub-section A focuses especially on the cognitive, beliefs aspects held by mothers. Sub-section B addresses economic factors. In Sub-section C we examine household management of ICY decisions that relate to the use of a commercial cereal from the perspective of logistic issues. Sub-section D investigates cereal feeding in childcare centres.

A. Perceptions about Foods and Health

Overview of mothers' concerns about health and nutrition

In the first interviews with respondents we honed in directly on a discussion of food and feeding, exploring their food practices and then obtaining their views about the qualities and characteristics of foods. We then broadened the scope of questions to frame the discussion in relation to health. For this exploration we turned to a second set of mothers. Our opening question was to ask them to reflect on the kinds of issues and challenges that families with infants and young children face. We used this approach in order to get a picture of the larger context within which IYC feeding occurs, as well as to assess how salient food and nutrition is for mothers, compared to other problems they have to manage.

As one might expect given the difficult economic circumstances that most families have to cope with, some mothers began the discussion by talking about the problem of having enough money to take care of their children. For example, one young woman explained that when the family consisted of just herself and her husband they could manage quite well, but now they have two children and the same income, and it is much more difficult to make ends meet.

Some mothers, however, immediately began to discuss issues related to health and nutrition. They articulated a broad set of challenges in which concerns about food and nutrition are included, but are not the sole focus. Here is an example from Marcia, a young mother with one child, 20 months of age.

“You do not necessarily need money to take good care of your child. But you can manage to keep the child healthy so that everybody will commend you for taking good care of her.... I do not take delight in seeing my child play on the bare floor like other children. This is because some germs may be picked up by the child. I

also keep an eye on wherever she goes to prevent accidents. I also make sure that whoever is going to pick her up is well kept. I also ensure her diapers are regularly changed to prevent rashes. I also make sure she is bathed and wearing neat clothing. As for food, she eats well so I make sure she has food all the time....Feeding, medication, hygiene are all part of the good care. I think they make the child grow well in a healthy environment. Some children are small for their ages because they did not get the kind of care that they should have. But a well cared for child grows well and is a delight to the mothers and others around her. With good care, a two year old child can look like a 4 or 5 year old child.”

In a similar vein, Jenny, the mother of a 7 month old, responded to our question about issues and challenges with a young child by describing a diverse set of health issues. She did not bring up food until we asked a probing question:

Jenny: “Well, my concerns have to do with the health of the child. Sometimes they fall sick and you need to give them medications to make them well. Supposing you give the medications and the baby is still not well you send her to the hospital... As a mother you need to constantly check the baby’s diapers to be sure the baby is not wet or else the baby gets a lot of discomfort and may even develop heat rashes. So the personal hygiene of the child is also very important...You have to be vigilant to ensure that the child does not put dangerous things into her mouth. We must also ensure the child is bathed well and wears clean clothes.”

Interviewer: *“What about food? Is food another thing that concerns you?”*

Jenny: “Food is very important. When I wake up every morning I have to see to it that the child has food to eat.”

Another respondent, Maureen, also gave a list of issues. When we challenged her as follows, asking *“you mentioned education, healthy eating, preventing him from getting hurt and money. Among these which of them do you think is the most important in ensuring your child’s health”* her reply was: *“Healthy eating.”*

On the other hand, a few of the respondents began their discussion by talking specifically about food and nutrition. Sarah, the mother of a 6 month old and four other children, said:

“I am majorly concerned about her feeding. I make sure she eats nutritious foods. If her appetite goes down, I take her to a pharmacist to prescribe some drugs for me. I also prevent them from playing under the scorching sun.... if my child feeds well, she will always be healthy.”

Another respondent said: *“The major problem is feeding because each and every morning, when one wakes up she has to think about the kind of food to give to the child.”*

Minnie, whose 17 month old daughter is not easy to feed, began by saying *“The difficulty I have identified so far is in feeding. She does not like food, so when it comes to eating, it’s so difficult.”*

We conclude from the diversity of responses that food and nutrition concerns have a high salience for these urban Ghanaian mothers, but they are embedded in a larger set of issues related, on one hand, to child care and, on the other, to financial stress.

How important are health concerns as a factor that affects decisions about what to feed IYC?

To assess this question we asked the full sample of 30 respondents to consider five factors -- healthiness, cost, child acceptance, convenience, and ease of acquiring the food -- and rank them in order of importance for their decisions about what to give their child. Here are the results:

Table 7. Ranking of factors that affect decisions about what to feed

Factor	Means (5 is most important)
Healthiness	4.9
Child Acceptance	2.9
Cost	2.9
Convenience	2.2
Ease of Acquisition	2.0

The results of this exercise are striking. Clearly health trumps everything else. Nearly all mothers chose healthiness as the most important factor they consider in making decisions about food for their children. Only 3 mothers assigned it to second place (after cost) and no one relegated it to a lower position. In anthropological parlance we would say that there is a “strong cultural consensus” that the “healthiness” of foods is paramount. Whether there is cultural consensus about the relative healthiness of specific foods is the next issue we examine.

Are some foods healthier than others?

Underlying the ranking of health is the implicit assumption that foods differ in their healthiness. Just how different are they from the perspective of Ghanaian mothers? Specifically, we need to know -- Are different kinds of IYC foods seen as having different properties with respect to health? Secondly, and most importantly for our assessment of the potential for a fortified, commercial cereal, we need to examine whether different kinds of cereals are seen as having different properties with respect to health?

To address this question we turn to the interview data on women’s ratings of IYC

foods for healthiness. To obtain these data we initially cast a wide net, asking about all of the foods that were elicited during the Free Listing exercise, plus some additional cereals and other family foods. (See Part 1, Section 3 for a description of the method for this exercise.) We asked all of our respondents to rate food items with respect to healthiness, as well as other qualities. Table 8 shows their ratings for all of the cereal foods. For comparison purposes, it is useful to examine mothers' views of non-cereal IYC food. These are shown in Table 9.

Table 8. Ratings of Cereal Foods (N= 30)

Cereal	Health	Child Acceptance (1 = high)	Convenience	Cost	Ease of Acquisition
Cerelac with milk	4.8	4.3	5.0	1.1	4.5
Koko +*	4.7	4.4	3.8	1.6	3.6
“Tom Brown” home +*	4.6	3.5	3.3	2.3	2.7
Millet porridge with milk	4.5	4.3	4.7	1.9	4.3
Cerelac	4.5	4.3	4.9	1.2	4.6
“Tom Brown” branded flour	4.5	4.3	4.2	2.5	3.8
“Tom Brown” maize flour, home prepared	2.1	3.1	3.2	4.3	3.3
Millet porridge	2.1	3.4	4.8	4.9	4.4
Koko	1.7	3.2	3.6	5	4

*The “+” indicates “home fortification” of product with fish powder, ground peanuts, soy flour, and/or oil

There are a number of valuable insights to be abstracted from this table. Focusing first on the healthiness ratings, we see that mothers perceive clear differences among the cereal-based foods that are currently available in their environment. In interpreting this table it is important to remember that “tom brown” is a generic name for porridges that are made from ingredients other than fermented maize (koko) or millet (Hausa koko).

The term covers a range of mixtures from unfermented maize flour to multi-ingredient weanimix.

There appears to be a basic division: cereals that generally receive high ratings on health, and cereals that are generally viewed negatively in relation to their value from a health perspective. While traditional complementary foods -- koko and millet porridge (Hausa koko) -- get the lowest ratings, the clear division between high health and low health cereals is not due simply to a rejection of traditional foods in favor of commercially-produced items. Traditional foods also receive high ratings on health, actually somewhat higher than commercial foods that are not prepared with milk, provided they are augmented with additional ingredients or milk.

One conclusion from Table 8 is that mothers are well aware of the nutritional advantages of milk. Secondly, it appears that they have been exposed to nutrition messages about the value of adding fish powder, ground peanuts, soy flour, and/or oil to traditional koko, as “home fortified koko” (koko + in the table) ranks just below Cerelac with milk (and above Cerelac prepared without milk) in the respondents’ ratings.

Ideas about the healthfulness of specific cereal foods, both traditional and commercial, show a high degree of cultural consensus. For example, 28 of 30 respondents gave Cerelac with milk high ratings (5 or 4 on the scale of 1 to 5), 26 of 30 did the same for Cerelac without milk, and of these, 22 placed the card with the picture of Cerelac on the highest position on the scoring board (e.g. “5”). Similarly, koko, which has the lowest mean rating of all the cereals, was given a low rating (1 or 2) by 24 of the 30 respondents. There was somewhat less consensus about the negative quality of millet porridge, which rates just above koko on the low end of the scale. In general, we conclude that the perceptions about individual cereal foods, like the perception about the importance of health as a factor in what one feeds one’s children, is characterized by strong cultural consensus.

Table 9 shows the ratings of non-cereals that are commonly fed to IYC. Many of these are also family foods. The foods in the top half of the table were rated by all of the respondents. The foods in the lower half were rated by 12 respondents. With the exception of rice balls and mashed yam, the foods are generally given high ratings on healthiness. Women frequently commented that meat and fish in the stews were excellent sources of nutrients. The typical phrases that were used to describe these foods included:

“They are all very nutritious

”They are full of energy and will make them healthy”

“These will make them healthy and strong”

“Generally the softness of these foods makes them convenient for the baby. They are also very nutritious”

12/11/18

“They can easily eat these foods. They are highly nutritious.”

Table 9. Ratings of non-cereal foods

Food	Healthiness	Acceptance	Convenience	Cost	Ease of Acquisition
(Full sample N=30)					
Mpotompoto	4.5	4.1	2.6	3.0	3.0
Mashed yam	2.4	3.0	2.8	3.6	3.1
Tuo Zaafi	4.2	4.0	1.5	2.4	2.7
Banku/okra	4.2	4.1	1.4	2.1	2.5
Boiled yam/stew	4.4	3.6	1.8	2.3	2.6
Cassava-plantain fufu	3.3	2.9	1.1	1.9	2.5
Boiled rice/stew	3.4	3.9	2.1	2.1	3.1
(Sub-sample N= 12)					
Rice balls	1.6	2.4	3.0	4.1	4.0
Rice balls/peanut soup	4.1	3.3	1.3	1.7	2.3
Rice-beans/fish	3.1	2.5	1.8	2.4	2.3
Boiled plantain/stew	4.6	3.8	2.3	2.2	1.8
Fried plantain/stew	4.8	4.2	1.7	2.5	2.4
Jollof rice	3.8	4.0	2.0	1.8	2.3

Why are some foods healthier than others? Nutrition beliefs and knowledge

As we continue our examination of the cultural context of infant feeding, we need to look more closely at what women believe about the qualities and characteristics of foods with regard to their healthfulness. The education level of our respondents varied widely from no education to completion of high school or higher. Some of the women are functionally illiterate, and none of them reported reading magazines or newspapers (one of the LSM indicators). Nonetheless there are indications that their beliefs about the differential value of different foods reflect larger concepts about what constitutes healthy food and good nutrition, much of which is closely allied to contemporary nutrition and public health knowledge.

One dimension we identified through the interviews is that, for some women, food hygiene and the cleanliness of food constitutes a major component of its healthiness. This idea is reflected, for example, in the following statement:

“Even if my baby does not like the food, its healthiness is more important. Healthiness of food means it is commercially manufactured like Cerelac and Lactogen.”

The cleanliness of food can be achieved through different means. For some women, as expressed in the quotation above, “factory-made foods are clean.” Others feel that the only method to ensure the health (i.e. safety) of foods is to make it from scratch themselves. For example, in the course of discussing food and health, the interviewer asked one of the respondents: “*What makes a food healthy?*” and she answered: “*Food*

prepared at home because one cannot trust food prepared outside.” For women who hold such views getting food from vendors on the street is to be avoided. However, others expressed the view that one can buy safe, ready-made convenience foods on the street if you are careful about whom you buy from.

Apart from food hygiene, a fundamental component of the broader concept of healthiness is that foods can be nutritious and that they contain nutrients. Most of the women used one or more words that are best translated into English as “nutritious.” Here is a sampling of the types of comments our respondents made in conjunction with their ratings of foods:

“These foods have no nutrients”

“They are all good and nutritious”

“Children like them and they are nutritious”

“They are highly nutritious.”

“They are not as nutritious as the others”

“These will make them healthy”

Explaining the low rating she assigned for koko and millet porridge, a respondent said: *“The nutrients [in them] are not enough”*

Some respondents mentioned vitamins in connection with specific foods. For example, Jenny said: *“Fruits make the children strong and healthy. They also contain vitamins.”* When the interviewer asked her what vitamins do, she replied *“They make us strong and healthy.”* Later in the discussion she commented that Cerelac contains vitamins.

Maureen, who has a secondary school education, and the highest LSM of the women in our study, offered this articulate view of nutrition during an exchange about healthy foods for her 15 month old son:

Interviewer: *How would you prepare Albert’s food to ensure that it is very healthy? What would you consider?*

Maureen: *The nutritional value of the food.*

Interviewer: *What nutritional values would you consider?*

Maureen: *It should contain proteins, vitamins, carbohydrates, minerals, fats and water.*

Interviewer: *You mentioned vitamins, what do vitamins do for the body?*

Maureen: *It makes the child grow well.*

The concept of vitamins is not part of the conceptual framework about nutritious foods for all of the women. Consider the following exchange with Estelle, the mother of a 7 month old girl and two other children. After she used the word “nutritious” in connection with a discussion about some complementary foods, the interviewer ask:

- Interviewer: *Have you heard of vitamins? What are they?*
Estelle: *No*
Interviewer: *When you go for weighing what drugs do they give to Jessica?*
Estelle: *Polio treatment drug and a red drop called vitamin A*
Interviewer: *Do you give your child fruits?*
Estelle: *Yes, especially orange. I squeeze the juice, dilute with water and give it to her by means of a spoon.*
Interviewer: *Why do you give her orange?*
Estelle: *It helps prevent constipation.*

Another respondent, Mira, the mother of a 15 month old and one other child, gave us this interesting conceptualization of food, fruit and vitamins:

- Interviewer: *In talking about ensuring the health of your child you did not mention fruits. Do you give your children fruits?*
Mira: *Yes I do.*
Interviewer: *So why didn't you mention it?*
Mira: *We were talking about foods and not fruits. Fruits are not foods.*
Interviewer: *Why aren't fruits food?*
Mira: *Fruits do not give energy. But they protect the children against diseases and make them grow well. Fruits also give free bowels.*
Interviewer: *What do fruits contains?*
Mira: *They contain vitamins like E, A, C.*

The concept of vitamins also occurred in spontaneous discussions about vitamin supplements in the context of discussing strategies for dealing with poor appetite. (see below).

In summary, mothers clearly have the view that some foods are better than others with respect to health. Healthy foods are sanitary. Healthy foods are high in nutrients. In the local language, in the context of a discussion about foods, the concept of *ahondene*, which translate best as nutritious, refers to a substance that gives strength. This, in turn, leads to “*apomdene*” (healthy or the state of being healthy). Regardless of their level of education or literacy, the respondents had no difficulty in rating the individual food items on a scale of healthiness. The task intuitively made sense to them. They readily make comparisons among food items with respect to their health value, as is clearly indicated in this statement from Sarah: “*I was advised that dried fish is as nutritious and healthy as fatty meat which gives a lot of health complication.*”

Sources of nutrition information.

For the women we interviewed the child welfare clinics and the health professionals, especially nurses at the clinics, are an important source of knowledge about nutrition and health. Women referred repeatedly to “the weighings.” Their discussion about the advice they receive at “the weighings” was offered spontaneously as we did not ask any direct questions about their use of health or nutrition services. Here are some examples of the types of statements they made in connection with the child welfare clinics:

Clara: *They advise us on proper feeding of our children. They also listen to our complaints and give us remedies, such as drug prescriptions. They check the child’s weight and recommend what is to be given them.*

Maureen: *They sell weanimix at the clinic and the nurses there advise that if we want to prepare it at home we should add soya to it. I make my own, and I add soya powder to whatever food I cook for the child. I also make fish powder and add to her meals. The weighing nurses advised that I add the fish to the food for the baby.*

Marcia: *I know [that margarine contains vitamins] because we were told that at the weighing. In fact on my baby’s weighing card, some of the recommended foods that contain vitamins are down on the card. So we learn from the cards also.*

The child welfare clinics routinely provide nutrition information as well as serving as an important source of health care. Premixed weanimix powders are available for purchase at these centers, and a number of women said that they purchase infant cereals when they take their children for preventive care. The growth monitoring at the centers functions to identify children who are not growing well, and they refer caregivers to programs where they receive more in-depth nutrition advice. A couple of our respondents discussed their experiences with these programs, and credited them with giving them valuable advice for managing their children’s nutrition.

Sarah: *I remember when my 7 year old child was a baby she went through the same problem of not eating. I took her to “Korle-Bu” and was directed to a place called “Kitchen”. There I was taught how to prepare nutritious foods for my baby and it paid off.*

Local pharmacies do not seem to be an important source of nutrition advice, judging from the fact that this topic never arose spontaneously in the discussion. However, they may be a source of learning about multi-vitamin preparations. The child welfare clinics are certainly a source of information about vitamin supplements and may also be the place in which women are introduced to them. Consider this statement from Eleanor:

- Eleanor: *I was advised during weighing not to force food on him; he should be allowed to eat what he wants. I was also given first aid drugs to administer to him...Paracetamol syrup, multivitamin, tida, chloroquine syrup.*
- Interviewer: *You mentioned multivitamin: what does it do to the baby?*
- Eleanor: *I know it is given to the child when he loses appetite and it also makes him strong and healthy.*

Commercial vitamin supplements

Women are aware of the possibility of vitamin supplementation. Typically supplements are conceptualized as something one gives to improve appetite in a child whose eating is judged to be problematic, either from the perspective of the mother or from the perspective of the professionals at the child welfare clinic. Here is an example from Mira:

“At the hospital I was told to give her multivites so I give some multivates when I realise her eating is poor. I stop when the eating improves.”

To more fully examine respondents’ views about supplements, we included them in one of the rating tasks for the care focus group. We asked them to rate a commercial vitamin-mineral supplement and, at the same time, an anti-malarial in relation to four dimensions: importance for health, cost, influence of others, and distance one needs to go to obtain them. Each dimension is rated on a 5 point scale with 5 being highest (best). We selected an anti-malarial as a companion item to rate because supplements were often discussed in conjunction with medical care, and we wanted to understand how supplements are viewed in relation to a common medication. Table 10 shows the results for the 12 women who participated in the rating task.

Table 10. Women’s ratings of a vitamin preparation and anti-malarials

	Healthiness	Cost (high = 1)	Distance	Influence of others
Commercial vitamin preparation	4.8	1.1	4.2	3.1
Anti-malarial	4.3	2.3	4.3	3.1

There was a high degree of cultural consensus on both the vitamin supplement and the anti-malarial for all of the dimensions except influence of others, with most women selecting similar values for their ratings. The vitamin preparation received universally high ratings on healthiness and was universally seen as costly. Anti-malarials got somewhat lower rating on health and were viewed as marginally less expensive. Both items are easy to acquire within the various neighborhoods where our respondents live. Influence of others is the only item that showed some variability within the group. The

women who gave a high rating to influence of others on these two items also assigned the same high rating to Cerelac in the food rating task, which suggests that when husbands control the purchase of foods for IYC, they also control medically-related purchases.

The concept of fortification

At the close of the interviews with the care-focus group of respondents we directly brought up the idea of food fortification, asking the women whether they had heard about this idea and what it meant. For the most part the women had never heard the term. However, some of them knew that some foods have enhanced nutritional properties because something has been added to them.

Interviewer: *Do you know ... some foods have been fortified with vitamins?*

Respondent: *Not really but I know there is something in these foods that makes them nutritious...I know for instance a food like Cerelac is “fine” because it contains something that would make my child grow healthy.*

A more systematic examination of women’s understandings and reactions to the concept of fortification is necessary before we can draw any conclusions about how responsive they would be to a marketing presentation of its benefits. Judging from the initial reactions, we expected the reactions would be positive.

Child acceptance of foods

Returning to the data in Table 7 (above) we see that child acceptance was ranked equally with cost as a factor that affects women’s decisions about what to give their children. The mothers carefully monitor their children’s reactions to foods and are quick to make changes when a child shows signs of rejecting an item, offering substitutes for the rejected foods. In the discussions about individual food items virtually all the interviews involved at least passing mention of children’s reactions to particular foods. Moreover, how well or poorly children eat in general, their appetite, was a subject of concern that surfaced repeatedly throughout our interviews. In the course of the study no respondent ever voiced a concern about lack of availability of appropriate, nutritious complementary foods. On the other hand, a common theme, which is closely related to child acceptance, was an abiding concern about problematic eating – e.g. rejection of foods, refusal to eat – on the part of children.

The importance given to child acceptance of foods may come as a surprise. While child psychologists emphasize that infant feeding is a two-way process in which infants play a strong role, nutritionists and other public health professionals tend to forget this. But mothers do not, and through the rating exercise, as well as in their comments throughout the interviews, they reminded us that they are paying attention to how their children respond to the foods they offer. As one mother put it: “[Acceptance] comes

first because the child has to eat to be healthy.”

B. Economic Aspects of IYC Feeding

Table 2 in the section on characteristics of the sample showed that the range in Living Style Measures (our measure of socio-economic status) was from 3 to 10, which reflects a broad spectrum of Accra living conditions, but excludes the wealthy. Many of the women in our respondent sample keep house without the advantages of running water, a refrigerator, or a gas or kerosene cooking stove.

The amount of money that households spend per week on food varies across a relatively small range. As shown in Table 11 many respondents estimated that they spend just under 10 Cedis (\$7.00) a day on food for the household, while the estimates of the highest LSM respondents were about 13 Ghc (\$9.00) per day.

Table 11. Daily Food Expenditures

LSM	Household food expenditures Mean and (SD)	Expenditures for IYC Mean and (SD)
8-10	12.9 (7.0)	2.1 (1.2)
6-7	9.3 (5.8)	2.4 (1.3)
3-5	9.2 (2.9)	1.6 (0.6)

Table 11 also contains respondents’ estimates about the amount they spend on food for their IYC. Again there is very little variation across LSM groups, with an estimate of 1.6 (\$1.12) in the lowest LSM categories and (\$1.50) in the highest groups. On average households spend about 25% of their food dollar on foods for their infants and young children.

Table 12. Cerelac in previous 24 hours and Household LSM

	LSM Score	
	Low (3-6)	Moderate (7-10)
Cerelac Given		
Yes	7	4
No	11	8

In Section 1 we presented data on IYC consumption in the previous 24 hours. Here we examine these data in relation to household economic status and food expenditure.

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The results in Table 12 show that there is no relationship between economic status, as measured by LSM, and whether a child received Cerelac the day before the interview. In both the higher and lower LSM groups, more than half of the mothers gave their children Cerelac. These summary results, showing no relationship, were confirmed in a scatter plot. Similarly, there was no relationship between LSM and koko (not shown).

For the purpose of assessing the potential for a new commercial cereal, what is noteworthy, in the economic data is that many poor women are willing and able to purchase an instant, fortified cereal for their child.

C. Managing the logistics of food: cost, acquisition, preparation and convenience

Although expenditures for IYC foods were not related to feeding practices, concerns about having enough money to take care of one's children was a dominant and recurring theme throughout our interviews. Based on the frequency with which it came up, and the amount of time devoted to it during the course of the interviews, it is clear that having sufficient money to feed and care for their children is a primary concern in the lives of these Ghanaian women. As one respondent put it in the context of a discussion of influences on her decisions: *"People give all sorts of advice when it comes to caring for a child, but it is the money I have that will determine what I would buy.* In the previous section we presented data on what our respondents are spending on food for their IYC in relation to household food expenditures and household economic status. Here we examine the issues of cost and expenditures in relation to the social dynamics of food acquisition.

Acquiring foods: the matter of control over resources to purchase food

From one culture to another women's role in acquiring foods to feed the family vary widely, but they often present serious challenges. In some societies men have the major responsibilities for growing the food and ensuring that storage facilities are full. In such societies women's role in food acquisition is relatively minor, and they have relatively little say about the foods that are available to them to prepare meals for their IYC and other family members, except for kitchen gardens and, in some situations, the raising of chickens or other small animals. In other farming communities, women have a major responsibility for producing food, as well as for preparing it.

In many urban communities, or rural communities where much of the household food is purchased, men fully control household access to purchased foods either because they do all of the food shopping or because they control the amount of money a woman has available to make purchases. When women earn money independently of their husbands they sometimes, but not always, are given control over their funds, and it is often the case that they use their earnings to improve the family diet, particularly the diet of infants and children. The extent of control women have over household food purchasing varies widely, not only between societies, but also within them.

To gain insight into the situation in Accra with respect to who controls

resources that are used to acquire food we used two techniques with a subset of respondents: (1) we included “influence of others” as a factor in the ranking exercise on factors that affect what you feed your IYC, and we examined this in the exercise asking respondents to compare Cerelac and tom brown.

On the ranking of factors that affect what respondents give their children, “influence of others” had the lowest rank (1.3) and the majority of respondents relegated it to last place. Intriguingly, a number of the respondents were indignant about the suggestions that anyone would influence how they managed the feeding of their infants. They forcefully made statements such as:

*I decide what is best for my child.
I don't listen to people, I do what is right.
I am not influenced by anyone in anyway.*

On the other hand, the responses on the ratings for the two cereals were more nuanced, and revealed a more complex picture of variation within the community.

Table 13. Respondents’ ratings on importance of influence of others for two cereals (N=12)

Food	Rating for “influence of others” (5 is highest)				
	5	4	3	2	1
Tom Brown	4	2	4	0	2
Cerelac	4	2	4	0	2

Significantly, the women who perceived a strong influence of others usually identified the husband, or in one case it was a sister because she supported the family. The husband’s role as the person who controls the finances was given as the explanation for his influence. For example, one respondent said: “*My husband has so much influence because he gives out the money for everything.*”

Apart from the influence that comes from financial control, some women indicated that they seek advice in the form of suggestions from their mother. Also, some of the women referred to the advice they receive at the child welfare clinic as a source of influence.

Convenience, distance and ease of access to complementary foods

Compared to rural areas, urban centers tend to have a high density of places to obtain a wide range of foods. They also have great range of choice in the types of foods that are available—from ready-to-eat and ready-to-cook foods to basic ingredients. The effects of these characteristics are evident in the massive dietary changes of contemporary urban life. However, access to the diversity of foods one finds in urban areas is not uniform across cities and peri-urban area. A recent and growing literature on food availability in poor neighborhoods is drawing attention to the fact that, at least in large cities in Europe and North America, constrained availability of some foods, especially fresh fruits and vegetables, is exerting a negative effect on household diets. Poor transportation services and the fact that most poor families do not have cars add to the problem of access.

Given its potential impact on child feeding, it was important to explore the issue of access to IYC and household foods with our respondents. We employed the following techniques to examine food access: observations in the various neighborhoods where our respondents live; asking about “ease of access” as a dimension in the ratings of IYC foods, and including it in the relative ranking of factors that affect what one feeds to children. We asked direct questions about where our respondents purchased their IYC cereal-based foods and the ingredients for these foods. We also asked a subset of respondents to rank distance as a factor that affects what they feed their children, and, finally, as a check on the reports, we asked a subset of the respondents to draw maps in which they located their residence in relation to the locations of food purchases. We begin with the respondents’ perceptions about “ease of access” for IYC foods.

Table 8 (above) shows the ease of acquisition ratings for cereal-based foods and Table 9 (above) contains the information on non-cereal IYC foods. It is important to note that the most expensive commercially produced infant cereal (Cerelac) receives the highest rating for “ease of acquisition” relative to all other foods. In fact most respondents gave it the top rating of 5. This finding is explained by the fact that most of the small neighborhood kiosks that dot the landscape offer single-portion packets of Cerelac for sale.

Millet porridge (Hausa koko) follows closely behind Cerelac in the ease of access rating. This is explained by the fact that it is available “ready to eat” from the ubiquitous neighborhood “porridge sellers.” “Hausa koko” is made not only for infants and young children, but it has a large market as the ultimate convenience food for a household.

On the other hand, the cereal that gets the lowest rating is home fortified tom brown. In this case, the referent is to the various forms of home-prepared weanimix, which are augmented with e.g. soya flour, ground peanuts, and other ingredients that are added to boost its nutritional value. The significantly lower “ease of acquisition” value of this cereal compared to Cerelac (Chi square = 15.9; $p < .0001$) reflects the fact that the additional ingredients are not usually readily available in the urban and peri-urban neighborhoods.

Compared to the cereals in Table 8 the foods in Table 9 are given substantially lower values on ease of acquisition. The mean values in this table mask a range of variation among respondents on ease of access. For example both *banku with okra* and *boiled yam with kontomine with fish*, with means of 2.5 and 2.6 respectively, have bimodal distributions in which about one third of the respondents are selecting easy access (ratings of 5 or 4) while nearly two thirds are selecting difficult access (ratings of 1 or 2). It is probable that the differences in the selection of values reflect differences of proximity to large markets and stores from one neighborhood to another.

Distance is a component of “ease of access.” For most people, having to travel a greater distance to obtain a service or a good reduces one’s perception about how easy it is to acquire it. In a subset of 12 respondents we included distance in the ranking of factors that affect what they feed. Here are the values they assigned:

Table 14. “Distance” as a factor in what one feeds children (5 is highest influence)

	5	4	3	2	1
No. of women	0	2	5	6	2

Most of the women regard distance as a low concern compared to issues like health and cost. However, two respondents gave it a high rank and only 2 placed it last. In their ratings of Cerelac and tom brown, three fourths of these respondents gave Cerelac the best rating (5) on distance with a mean of 4.2, while the mean distance value for tom brown was 3.2. These ratings accord with the “ease of access” rating and indicate that the distance one has to go to buy a food relates to perceptions about how easy it is to acquire it.

Another dimension of food management that relates to issues of ease of

access and distance is convenience. Convenience is a rather global concept, which may be defined differently by different people. For some convenient means you can eat it “on the run.” Some people regard foods that are ready to eat and need no refrigeration as convenient. For others a hallmark of convenience is a food that requires no cooking. Convenient can also mean readily purchased and requiring no planning ahead. With our urban Ghanaian respondents we did not try to “unpack” their various means of convenient. Instead we asked them to rate foods for “convenience,” based on whatever meaning they personally gave to the term. Table 8 (above) shows the results for the full sample for cereal foods, and Table 9 shows the results for non-cereal foods.

To help interpret the women’s responses in relation to food preparation, we asked them to describe the procedures they used for the foods they gave to their IYC. Here are some examples for koko and tom brown for preparations that were made especially for the infant and not shared with other family members. One woman described her preparation of koko as follows: *“I bought and steeped the corn myself, then I milled and fermented it. I took a portion of the dough, mixed it with some water and cooked in boiling water while stirring.”* Another said *“I sieved the mixed corn dough, then I cooked it with “whintiaa” Before that I bought corn and soaked it for milling.”* A typical report on the preparation of tom brown (weanimix) was supplied by Mary: *“I milled some roasted corn, soya beans and groundnuts to get the tom brown, then I mixed some with water and with water and cooked in boiling water, stirring till cooked. After I added some milk and sugar.”*

In contrast to the preparation methods for cereals that require cooking, the description of Cerelac preparation was uniformly short and simple. Twenty one of the 30 respondents described their preparation of Cerelac. Virtually everyone said they emptied the content of a packet into a bowl and added water; 2 women noted that they use “hot water,” 14 women said the water was “warm,” one woman described the water as “cold” and 4 of the respondents did not specify the water temperature. It is not clear whether the water is heated to boiling and cooled or just warmed.

When it comes to convenience only one food from the total of 22 foods on the two tables universally received the same rating, and the highest rating -- Cerelac with milk. Cerelac prepared with water did almost as well with a mean rating of 4.9. Next in line, with convenience means of 4.8 and 4.7 was millet porridge and millet porridge with milk. Among the cereals, the lowest mean ratings on convenience were for home-prepared tom brown and home-fortified tom brown.

The explanation for the exceptional high rating and total agreement on Cerelac involves several factors, some of which have been discussed previously. The packets can

be obtained quickly and easily from neighborhood kiosks. The product is sold in larger tins but also in small packets, and, although the price per unit of weight is high, individual packets can be purchased with a small cash outlay. Another aspect of convenience is that it requires no cooking over a fire, although the majority of the women claim they use warm or hot water. Women do not have to heat up a charcoal brazier to prepare it. It can literally be purchased and fed “on demand.” Thus it qualifies as a “convenience food” par excellence. Millet porridge is also very convenient because it can be purchased ready made from a koko seller, and sellers are also usually to be found very close to home.

The non-cereal foods routinely receive low ratings on convenience. Of all the items elicited from the initial free listing of complementary foods for IYC, the popular *tuo zaafi* and *banku* with okra were given particularly low ratings on convenience. The descriptions women gave about their long and complex preparation techniques for these foods provide a clear explanation for these ratings. None of the non-cereal items are seen as convenient compared to the cereals; even home prepared *tom brown*, which had the lowest convenience mean for cereals, was marginally better than rice balls, the most convenient non-cereal food.

The maps our respondents drew to illustrate where they purchase foods confirm the generalizations made above about distance. The women show that kiosks to purchase Cerelac and vendors to buy ready-made porridge are uniformly located a short or often a very short walking distance from their homes. However, as shown on their maps, many of the women indicated that purchases of ingredients for family foods require a trip by “*trotro*” (the local name for jitney services that are the major source of public transportation.) Typically women make the trip to large markets once a week. Some women drew in the location of smaller stores and convenience stores, usually at greater walking distance than the kiosks, where they also make some food purchases. The supplies for making *weanimix*, or the mix itself, are sometimes obtained at the child welfare clinics, which also involves travel (with the baby) by *trotro*. A few women reported that a relative (mother or sister) bring them the supplies they need to prepare *weanimix*.

Regardless of the challenges that women face in providing foods for their children, we saw in Table 7 (above) that one indicator, “ease of access” to foods, was considered the least important factor that influenced our respondents’ choices about what they feed their children. Similarly, “distance” was also generally downgraded as a compelling factor, and even convenience is not overtly touted as being of primary importance. Some women were very explicit about why these factors are not important. This is perfectly captured in Estelle’s statement:

“Once it has to do with my child’s health, I will do all that I can to keep the child healthy. Distance and time are irrelevant if only the child will eat the food.”

On the other hand, the relationship of issues of acquisition and convenience to childcare, are actually quite complex, and women often expressed the competing pressures they have to juggle. Here are some examples:

“If it is closer, I can get it in time and come back home to do other things. I need time for the children.”

“A short distance will give me ample time to go and return to do other things.”

“With weanimix I have to board a bus to be able to purchase it. With Cerelac I just walk to the market to get it. I need time to be able to feed my child and take care of her.”

“Time is important to ensure that a child is healthy.”

“My child is like my eye. His health should be my priority. Time is important; distance: I need to get back home in time to cook and take care of my child.”

D. Child Feeding in Creches

The child care organizations we visited range in size from 50 to 400 children, with the number of IYC between 50 and 120. The crèches usually admit children who are completely weaned off the breast (about one and half years old), although 2 respondents confirmed having admitted a few children when they were only 3 months old. Although school officially starts at 8.00 am and closes at about 4:00 pm, a sizable number of children are dropped at school as early as 6:00 am and picked up from school considerably after 5:00 pm.

Lunch is served in all the crèches we visited. The cost of lunch is either included in the regular school fees of the children or collected at the point of serving the food. The cost of a plate of food ranged between Ghc 60p and Ghc 1.50p. The food items that are served in the school include the following:

- Waakye and fish stew
- Ripe plantains with garden eggs stew
- Mashed yam with flaked fish stew
- Plain rice with fish in tomato sauce
- Jollof rice with sausage/beef
- Boiled rice with stew and beef/boiled egg
- Boiled yam with palaver sauce
- Fried vegetable rice with chicken
- Beans with fried plantains
- Fried yam with sausage
- Banku with okro stew and fish/crab/wele

The selection of items is rotated on a fixed schedule.

We asked respondents what foods were the best liked by children, and they all suggested that rice and its variants are the most liked foods across the full age range of children in their centers. Banku and okro soup, on the other hand, is generally the least liked meal. However, for young children (2 years and below) banku with okro soup, enriched with fish powder, is the preferred choice of the school administrators because it is a food that is easy to feed since it is readily swallowed.

To explore the potential of crèches as an outlet for a fortified commercial cereal, we initiated discussions with our respondents about breakfast as a crèche meal. Breakfast is not served at the schools, nor are children given a snack prepared by the school. However, children are permitted to bring snacks in their “snack pack.” For children who bring cereals to school, the most common ones are: Cerelac, Cerevita, and koko (white and Hausa). Interestingly, weanimix was not mentioned by any of the crèche respondents as a cereal that children bring to school. On further probing about weanimix, it appears that our respondents have never seen their charges consuming it in school.

A number of reasons were given to explain why the crèches/schools did not serve breakfast: (1) most children are given breakfast at home before coming to school; as one respondent said: *“It is the responsibility of parents’ to feed cereals to kids before they come to school”*; (2) making breakfast for the children should be a collective decision between the school authority and parents since the health of the children, coupled with financial commitments, are at stake; (3) a related issue of cost is that respondents feared that paying for a school breakfast would compound the already difficult situation parents find themselves when it comes to meeting their school fees. Another reason given was that some parents may take undue advantage and drop off children too early in school, thus shirking a part of their responsibilities. Lastly, but not the least, some of the respondents felt that adding breakfast to their schedule would be too much work for the staff.

In spite of the reasons why adding breakfast to school feeding was not attractive to crèche administrators, when we asked them directly about whether they would be willing to try out a breakfast plan based on “weanimix,” 4 out of the 5 respondents expressed a willingness to try it, provided that parents were interested. For the respondent who was unwilling to consider a weanimix breakfast, her explanation for her position was that most children after 18 months of age do not want to be fed cereals. They prefer to eat family foods.

To summarize, we found breakfast is rarely served to children in school. Rather, children either eat breakfast at home or come to school with a packed breakfast. Secondly, the most common foods they bring are Cerelac, Cerevita, Friso cream, Milo, tea and koko (white and Hausa). Four of our five respondents expressed a willingness to try weanimix as a breakfast meal at school, provided that parents were interested in instituting a warm school breakfast and gave their approval.

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SECTION 3. CURRENT MARKETING VENUES FOR CEREAL-BASED COMPLEMENTARY FOODS

A. Ready to eat foods: the case of koko sellers

As noted in the methodology section, the purposes of this sub-study were:

1. To find out what ready-to-eat cereals for IYC infants were being prepared and sold by independent, local community vendors (“street sellers”)
2. To assess the viability of introducing a new weanimix product (e.g. Maisoyforte 6-24) through street sellers as another ready-to eat-cereal
- 3) To identify the challenges koko sellers face and what they would be willing to do with respect to modification of their current practices.

Ready-to eat-foods are a common feature in urban Accra, and ready to eat cereals, particularly koko, are a particularly popular form of this food genre. Transect Transact walks through the study communities revealed that a number of different types of ready prepared cereals are being sold. These include Hausa koko, rice water, broken maize grain porridge, and, to a much lesser extent, a fermented maize porridge, commonly referred to as “white koko”. Of these cereals, Hausa koko (millet porridge) and white koko were the only cereals that were considered by our caregiver respondents to be appropriate for infants 6-24 months. The dietary data presented above indicates that many mothers give their IYC koko (both HausaHausa and white koko). Almost all these mothers who gave HausaHausa koko to their children purchased it from koko sellers rather than preparing it at home.

In the following paragraphs, only HausaHausa and white koko will be discussed. The data in this section were derived from our interviews with 8 koko sellers. Respondents were asked who their clients were and the answer was usually every member of the community: children, babies, working and non working men and women, school children, the sick and the aged as well as some foreigners (“abrofo”). When we asked specifically whether the koko they prepared and sold was bought for family consumption or for babies they uniformly replied that HausaHausa koko was usually purchased for the whole family, although in some cases mothers indicated to the seller that babies were going to consume the product. On the other hand, white koko was bought mainly for children and the sick and not usually for family consumption. This partly explains why white koko is less commonly prepared and sold than HausaHausa koko. The HausaHausa koko sellers added that because koko was meant to be consumed by babies, spices, especially pepper, were added in moderation.

We asked the respondents to describe the preparation process for their products. For respondents who sold Hausa koko, the preparation methods were tedious and could take a whole day or more. They explained that it is partly due to the tiring nature of its preparation that most families will buy rather than cook Hausa koko for their families. Another reason why families buy Hausa koko is that the addition of special spices to the recipe gives it a unique taste and flavor, which is peculiar to commercial Hausa koko.

The process of preparing Hausa koko involves 3 stages: First is the purchasing of the millet grain, picking out the stones (partly due to the harvesting process) and soaking the grains in water overnight (or for about 8 hours) to soften them. The second stage involves draining out the water from the millet, adding some spices (ginger, pepper, “nkitinkitin”, “soo” etc) and grinding the mixture in a commercial grinding machine into a powdered form. After this, water is again added to the powdered millet and mixed into a solution. The solution is then sieved through a clean cloth to remove the chaff. The smooth fine solution is then left overnight to ferment. The last stage of preparation involves the cooking of the koko. Water is heated to the boiling point and the fermented millet solution is added and stirred until it is cooked. This process of cooking takes about an hour depending on the quantity of the millet. At this stage the koko is ready to be served.

Unlike Hausa koko, white koko is relatively easy to prepare. Maize is purchased and the debris is removed. The grain is then soaked in water for two days and milled in a grinding mill together with some spices (usually ginger and “soo”). Water is then added to the milled maize to a consistency of a semi-solid dough and the mixture is left to ferment for about a day. The fermented dough is then mixed with water and the solution is added to boiling water, stirring until it is cooked. This cooking process can take an hour or more depending on the quantity. Respondents added that usually white koko is allowed a longer time to cook than Hausa koko, partly because the former is meant to be consumed by children and the sick.

The koko (both white and Hausa) are stored in big aluminum pans. The pans are covered with plastic bags (to help retain the heat) before putting on lids of the pans. The pans are transported on a push cart, or on the head, to the point of sale. Koko is packaged in different forms. The most common method is to serve the koko in small plastic bags (commonly referred to as “take-away”). Some sellers also serve it in calabashes for clients who want to eat at the point of sale. Others serve it into containers (cups, bowls etc) that are provided by the clients.

Varying quantities of koko can be bought depending on the purchasing power of the clients. The usual amounts range between Ghc 20p to 50p, and for those who are buying for the whole family, as much as Ghc 1.00 or more. Between 2 and 3 scoops of a big size ladle, in addition to two teaspoons of sugar, usually sells for Ghc 20p.

To understand the motivation for getting into the business of koko selling, respondents were asked to describe how they became koko sellers. The majority responded that the business was a family one and they had learned it from their mothers and other older family members. Some respondents confirmed they had taken over the business from

their deceased mothers. Others expressed the idea that they did not perceive any other way to earn a good living. One seller was originally a seamstress, but took up the koko business because it was more profitable.

We asked sellers what foods they would like to add to their koko business if they had the opportunity to expand. Interestingly almost all respondents said they would rather expand the koko business by finding other outlets to sell in, as they did think any other food business would be as profitable as what they were currently selling. They explained that people from all walks of life enjoy the koko, and especially during Ramadan, they have the opportunity to make and sell two sets of koko, one in the morning for the non-fasting clients and the other for evening for clients who fast during the day.

In our exploration of whether koko sellers could be a potential outlet for a fortified weanimix (i.e. the proposed Maisoyforte 6-24) we began by asking them what they knew about tom brown/weanimix. All respondents seemed to have a fairly clear idea about what it was. They described it as a product that could be bought on the open market and at child welfare clinics across the city. They added that such products were appropriate for infants as they contain more nutrients that promote growth of children.

We asked the koko sellers whether they ever prepared and sold tom brown/weanimix, and the answers were uniformly negative. The respondents said that this product was more expensive to make than koko and this would affect their profit margin. Secondly, they felt that the product would not have a big market compared to koko as it is commonly known as a “weaning food” for infants. A third reason for rejecting it as something they would sell was that it is not as well known as koko and therefore would not be purchased by the general public. In sum, almost all respondents of our respondents expressed an unwillingness to prepare and sell tom brown/weanimix along with their koko. Only one seller reluctantly said that she would be willing to give it a try, saying: *“Everything has a beginning and perhaps with time the market will catch on”*.

We also asked our respondents what families could do to ensure that their babies were healthy and that they got the food they needed for growth. Most of the sellers suggested that babies should be given lots of breast milk and food of their choice to eat. Others talked about keeping a clean environment and feeding them well with family foods containing lots of leaves and proteins. Intriguingly half the respondents also mentioned that babies should be given tom brown/ weanimix as they contain soya beans and groundnuts, which are very nutritious for babies.

To summarize: the commonest and most acceptable ready- to- eat infant cereal being prepared to sell on the streets of Accra is Hausa koko (millet porridge). Although rice water and broken maize porridge are also commonly sold, they are not seen as appropriate for infants 6-24 months because they contain whole or partly milled grains. White koko is regarded as appropriate for infants, but it is not commonly prepared for sale by koko sellers. Most families prepare white koko (generally just referred to as “koko”) at home.

The major challenge koko sellers face is the time involved in its preparation. However, a primary motivation for accepting this “cost” is that it is a profitable business and has a large market in the community. The fact that it is often a family business, with women taking over from their mothers is a further motivation. The respondents had considerable knowledge about tom brown/weanimix but had never prepared and sold it as a prepared cereal. In spite of the fact that they regarded it as a nutritious food for infants, almost all of them were unwilling to entertain the idea of selling it because they felt it was too expensive to prepare and would not have a large enough market. They thought it would have a negative effect on their profit margins.

B. Sales outlets for IYC cereals

As noted in Section 1, the purposes of this sub-study were:

1. To inventory the types and characteristics of infant cereals that are available for sale in the community
2. To obtain sellers’ views about what influences mothers’ decisions about what to feed their IYC given the options available in the community
3. To examine sellers’ awareness and knowledge of the nutritional content of the various infant cereals they sell.

What stores are selling

Three categories of stores were inventoried:

- 1) Small kiosks and table top outlets.
- 2) Medium size container shops
- 3) Large stores (supermarkets)

All three categories of stores sell infant cereals. Table 15 presents the results of the inventory exercise.

Table 15. Inventory of IYC cereals in the kiosks and stores

Food	Type	Fortified	Pack sizes	Price (GH¢)	Quickest Selling size*	Who buys	How Acquired	Comments (e.g. is small amounts sold from bigger packs?)
Cerelac	Instant	Yes	400g 200g 50g	5.5, 6 2.2, 2.5, 0.65, 0.7,	400g(L), 50g (M, S)	Mothers, students, children	Delivered to store, Bought from elsewhere	Only tin Cerelac is sold because they want to maintain a certain standard(L), 50g is more affordable thus its much patronized(S,M)
Tom brown	Instant, Non instant	No	100g 400g 500g	0.7 2.5 2, 2.1	All (L)500g	Everyone	Delivered to store	Packaging has an influence on purchasing(L)
Hausa Koko	Non instant	No	400g	2.5	400g	Everyone	Delivered to store	
Roasted corn flour	Non instant	No	1000g	3	1000g	Everyone	Delivered to store	
Cerevita	Instant	No Yes	500g 200g 200g 50g	3.5,3.7,3.8 1.7 2.2,3.0 0.5,0.7	200g(L) 500g(L) 50g(S)	Everyone	Bought from elsewhere	200g is smoother and more affordable(M), Have stopped selling product because it does not sell quickly (M)
Wheat Cereal	Instant	No	50g	0.6	50g	Children	Bought from elsewhere	
Oats	Non instant	No	500g 500g(tin) 1.19kg	1.5, 2 4 7.5	500g	Everyone	Bought from elsewhere, Delivered to shop	
Nutrilac	Instant	Yes	400g	3.5,3.7	400g	Mothers	Delivered to store, Bought from elsewhere	
Farinha Lactea	Instant	Yes	300g	3	300g	Mothers	Delivered to store, Bought from elsewhere	
Beachnut (Good Morning)	Instant	No	170g 113g	2.5 2	170g	Mothers	Delivered to store	
Beachnut Oatmeal	instant	Yes	227g 227 g	3.1 5.5	227 g	Mothers	Delivered to store	5.5 g is with fruit
Ekuegbemli	Non instant	No	500 g	2	500 g	Everyone	Delivered to store	
Nutrilon	Instant	Yes	280g 230 g 300 g	3.5,2.7 3	230g (L) 280 &300 (M)	Mothers	Delivered to store, Bought from elsewhere	

* S = kiosk, small store; M= medium size store: L = large store

Two types of cereals are represented in this list – instant products, which require only the addition of water or milk to be ready, and cereals that require cooking before they can be fed to IYC. The latter type include oats, tom browns, premixed millet porridge and, ekuegbemli (corn grit porridge), and roasted corn flour, which is used to make porridge. In one of the big shops, the research team discovered a brand of instant tom brown, packed in a cup with a spoon and ready to eat. This is an exception to the usual presentation of tom brown as a product that requires cooking before it can be eaten. The shop owner where this instant tom brown was discovered commented that the product was on a trial sale and that this was the first of its kind.

The most common instant cereal in all the shops was Cerelac, which comes in different varieties (wheat, maize, honey, fruits etc.), different types of packaging and in 3 different sizes (50g, 200g and 400g). The smaller shops had mainly the smallest (50g) sachets and rarely stocked the tins (400g). According to the owners of these smaller shops, the tins were too expensive for most of their customers. In one out of the two large shops there was no sign of the Cerelac sachets, and the explanation for this absence given by the shop owner was: “*We are trying to maintain a certain standard here*”. This shop had many brands of instant cereal available and did not limit its inventory to Cerelac. The instant cereals on their shelves included: Nutrilon, Nutrilac, Beachnut cereals, and Farinha Lactéal. They also had multiple brands of tom browns and pre-mix millet porridge and ekuegbemli, which was not the case in the other large shop. The store owner indicated that this store was patronized by more affluent people and hence the desire to “maintain a certain standard.”

Almost all the instant cereals were fortified, with the exception of Beachnut’s Good Morning brand which contained dried fruit but no additional vitamins, and the new, instant tom brown. None of the products that require cooking were fortified.

Generally the prices of products were comparable across the three categories of stores. The exception is one of the large shops, which sold products at whole-sale prices that were significantly lower. The package sizes that sell most readily varied with the type of cereal and type of shop. With Cerelac, for example, the kiosks and small shops sell the sachets (50g) most quickly, while the medium and large shop owners maintained all 3 sizes were well patronized. The exception was the large shop where only the largest packaging size is stocked because of the perception that the small sachets reduce its image as a store of “a certain standard.” The tom browns were sold only in the larger shops, where they are available in 2 different sizes (400g and 500g). Both sizes, according to the shop owners, sell well. The instant tom brown came in a 100g pack, but because it was on a trial sale the shop owner could not comment yet on how well it would sell.

The big shops had all their products delivered to them by the manufacturing companies. The kiosks and medium size shop owners had their products bought to them by intermediaries who purchased them in the big market or they went to the manufacturing companies to obtain their supplies.

Sellers' views about the factors that influence mothers' choice of infant cereal

Shop owners/attendants were asked first to free-list and then rank the factors they thought influenced a mother's decision about what to purchase to feed their infants and young children. The factors they listed spontaneously were:

1. healthiness of the product and its nutritional content
2. expiry date
3. taste
4. acceptability by the child
5. easy and convenient to prepare while the mother is away at work.
6. a complement to breast milk,

Other responses, which were mentioned after prompting included, the cost of the product, the quantities and sizes they come in, how well the product will keep and whether it can be eaten by other family members.

There was a high degree of consensus on the ranking of factors. Almost invariably the nutritional and health qualities of the cereal were identified as the most important factor. This was followed by the expiry date of the product, which was put in second place by 5 out of the 7 shop sellers. Taste, followed by acceptability, were next in the ranking for 6 out of the 7 shop sellers, while the cost, quantity in a package and whether it can be eaten by other family members were mentioned as the 3 least important factors by 5 out of the 7 informants. However, the sellers in the two smaller shops rated cost, followed by quantity in a package, as the second and third important factors after nutritional/health content of the cereal.

Awareness of nutritional content of infant cereals by sellers

All of the shop owners were cognizant of the nutritional contents of the infant cereals they sold. We asked them to compare Cerelac to oats, two products that were stocked by all of the shops. The respondents noted that Cerelac is instant, ready to eat, smooth, more nutritious, contains vitamins, can be eaten easily by infants and other family members, is a more preferred cereal by most children, and you only need to add water to prepare it. On the other hand, oats are viewed as rough, requiring cooking and blending before a child can eat it, needs to be enriched with milk and sugar, does not have all nutrients and vitamins, and can also be eaten by family members. In two of the shops we asked the owners to compare tom brown as well as Cerelac and oats. Cerelac still remained the most nutritious and most convenient cereal compared to the oats and tom brown. It also is viewed as containing vitamins that are not found in the other two cereals. Both respondents said that while tom brown has proteins it does not contain vitamins, which oats do, but that unlike oats, you don't have to add milk. These ideas were expressed in the context of reading the packaging information.

In response to our question about what families can do to enhance the health of their children the shop sellers first mentioned good environmental hygiene to prevent

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infections. They focused on “proper care for infants” and stressed that mothers need to make enough time to feed and care for their infant. They also said that mothers must give their children nutritious food.

PART III

In the introduction to the report, we identified three underlying questions that have to be answered before the specific questions concerning the assessment of Maisoyforte 6-24 could be addressed. These are as follows:

1. Are infants and young children being adequately fed now?
2. Are IYC currently meeting their micronutrient needs through supplements that are routinely given along with food?
3. Could a nutrient-enhanced, fortified cereal potentially meet the gap between current practices and nutritional requirements?

The results from our qualitative dietary study in Accra indicate that common complementary feeding practices are not ideal, and it is probable that children are not being adequately fed now.

The data on caregivers' views about vitamin supplements, supported by the results of caregiver reports of current practices, suggest that supplements are not given routinely to infants and young children, so these do not constitute a mechanism through which micronutrient needs are being met.

The focus of this report has been an examination of the potential for a nutrient-enhanced fortified cereal to meet the gap between current practices and children's nutritional requirements. With one significant proviso, we conclude that the potential for such a product is good.

This conclusion, and our proviso, is based on our interpretation of our findings in relation to the following questions:

1. Is there a *dietary* niche for a new commercial cereal for infants and young children?
2. Is there a *marketing* niche for a new, commercial fortified cereal?
3. Is there a community niche for a *non-instant*, fortified cereal, sold in larger packages?

Is there a dietary niche for a new commercial cereal for infants and young children?

For infants the answer is an unequivocal yes, but only if the cereal is as good as, or better than the existing alternatives.

The practice of giving infants cereal as an early food to complement breastmilk is deeply embedded in the culture. From the perspective of behavior change, introducing a new cereal does not require a totally new kind of behavior, it only requires a change in the specific cereal the household is buying.

Currently there are six different types of cereals that are used in infancy as complementary foods. One of these is a commercial, instant, fortified cereal, produced by a multi-national company. Of all of the cereals that poor urban women are using, this cereal is the most desirable. It is desirable because:

- 1) It is perceived to be very nutritious, and healthiness is the value mothers care most about.
- 2) It is easy to obtain because it is sold by small neighborhood kiosks and no one has to take motorized transportation to buy it.
- 3) It is convenient because it does not have to be cooked.
- 4) Most infants are perceived to accept it, and child acceptance is a major concern for mothers.
- 5) Although it is very costly (on a per weight basis), it can be purchased in such small quantities (serving size packets) that mothers do not have to have a lot of cash at hand to buy it.

Is there a marketing niche for a new, commercial fortified cereal?

There is clearly a niche for an **instant** cereal sold in serving size packages. Judging from the fact that Cerelac is also sold in tins, there is also a market for larger packages or tins. The marketing outlets would be the same as those being exploited for Cerelac, namely small kiosks for the packets and large markets for the tins. A cereal with the same positive qualities as Cerelac, sold at a lower price, would find a ready market.

Is there a community niche for a non-instant, fortified cereal, sold in larger packages?

It is unlikely that a non-instant product would be successful in the urban market in poor communities, where use of commercial products of this type appears to be limited and where women tend to make porridges (generically referred to as “weanimix” or “tom brown”) from basic ingredients that they purchase and prepare “from scratch.” Judging

from the fact that the more up-scale markets are carrying and selling tom brown types of cereals, it might be more competitive in areas of more affluent families. Women, in general, are attuned to the nutritional benefits of adding additional ingredients to a basic grain cereal, and they believe that a home improved cereal is as nutritious as the fortified commercial cereal. However, it has a number of negative features:

1. The ingredients are time consuming to acquire.
2. The cereal is time-consuming to make.
3. The cereal is viewed as relatively expensive, although less expensive than commercially fortified, instant cereal.

Any attempt to add a new, non-instant cereal into this marketing niche would face several problems:

- 1) It is unlikely that it will be attractive to the owners of the small kiosks, as their experiences with selling tom brown have not been positive; therefore it will not have the advantage of ready availability;
- 2) A cereal that requires cooking will have to be prepared in larger quantities and stored for later use. If the expectation is that it will be consumed by the household, not just by the infant, it will have to be priced at the same level as the other cereals that are consumed by the household, and this will not be possible;
- 3) It is unlikely that it will be taken up by the army of koko sellers, who are filling the marketing niche of providing households with cheap breakfast food, and thereby relieving women of the necessity of preparing a morning cereal for the family. The koko sellers marketing strategy is to buy cheap ingredients and sell their product very cheaply.
- 4) It is unlikely that the product would be used by the crèches, as they are mainly catering to children after the age at which complementary foods are considered appropriate.

In conclusion, the proposed non-instant Maisoyforte 6-24 is unlikely to be successful. However, it is probable that an instant, fortified cereal, sold in small packets, and at a lower price than the current multi-national product, and with equal organoleptic properties, could, if effectively promoted, be a viable, commercial success.

The FES also yields many valuable insights to inform the development of a social marketing strategy. Below are some examples:

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1. This is a culture that places a very high value on giving infants nutritious food. Food is seen as a primary determinant of health and having healthy children is what mothers aspire to.

2. Vitamins are seen as contributing to health because they help children to grow. They also give children a good appetite, which is another characteristic that mothers value highly. Mothers are deeply concerned about any sign of reduction in appetite or rejection of foods, and child acceptance of foods is closely monitored.

3. This is a culture that stresses self sufficiency and sacrifice when it comes to the well-being of one's children. "I do whatever it takes." It does not openly value convenience, and certainly no mother would place convenience above quality. On the other hand, convenience is a serious issue. Women have difficult physical situations (e.g. lack of running water in the house, lack of electric or fossil fuel stoves, lack of refrigeration). Many of them work to earn money and time is almost always an issue. For many, getting food supplies for the family involves a trip by public transportation one or more times a week. Cooking the main meal of the day is time consuming and if they have some means of reducing preparation time or buying ready to eat foods moderate expenditures to achieve more time is a reasonable trade-off in relation to their time management budgets.

4. The most salient source of nutrition and health education are the child welfare clinics. Women can also buy infant cereals at the clinics, but many do not regularly avail themselves of this outlet.

5. In some households men control all expenditures, including expenditures for food. But this is not universally the case, and many women are making the decisions about what to feed their children themselves.

6. Having enough money to meet household needs, including sufficient food, is a continuous source of worry and anxiety for many women. Finding a way to reduce expenses while maintaining the quality of foods (healthiness) of foods would be very attractive to most, if not all, mothers.