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Nutrition Education in Child Feeding Programs in The Developing Countries

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TABLE OF CONTENTS

| | |
|---|-----------|
| Preface | 4 |
| Chapter I: The Double Purpose of Child- Feeding Programs | 5 |
| Chapter II: What You Should Know About Food | 8 |
| Chapter III: Setting Goals to Fit Your Community | 22 |
| Chapter IV: Some General Rules for Teaching | 30 |
| Chapter V: Working with Mothers of Preschool Children | 33 |
| Chapter VI: Teaching Children in School Feeding Programs | 37 |
| Appendices | |
| A. Preschool Child's Height and Weight Chart | 40 |
| B. Questionnaire for Learning Children's Food Habits | 42 |
| C. Publications That May Help You Do Your Job | 44 |

PREFACE

The United States, through the Food for Peace Program, the international organizations, and many government and voluntary agencies provide nutritious food for use in feeding programs in the developing countries to combat the widespread problems of serious malnutrition among children. The food reaches the children and expectant and nursing mothers through a variety of local feeding programs. The impact of these food aid programs can be greatly strengthened by making nutrition education an integral part of child feeding programs.

This booklet is intended for village workers and others involved in child feeding in the developing countries. By making nutrition education an important part of their feeding program activities, village workers can greatly increase their contribution to the attack on malnutrition among children. It is the purpose of this publication to assist workers involved in child feeding at the grass roots level to teach mothers and children about the foods children need for growth and health and how to use local foods to improve their diets.

In the long run, the nutrition education which grass roots workers provide may have a more lasting effect and may do as much for the prevention of future malnutrition as the actual foods contributed, important as these are to the health of the mothers and children receiving them.

This booklet is not a substitute for nutrition manuals prepared by government or voluntary agencies. Neither does it deal with education in nutrition which is part of the school curriculum. Hopefully, it will stimulate the development, in conjunction with child feeding programs, of nutrition teaching methods and materials adapted to the local conditions and needs.

I. The Double Purpose of Child-Feeding Programs

The diets of children are often poor in the developing countries. They do not get what they need for health and growth. Many programs have been set up in these countries in recent years to distribute foods to families or to serve meals and snacks to children in schools and other settings. More and more, these programs are concerned with the **total** diet of the children and not only with what can be provided through the program. There should thus be two aims for child-feeding programs:

1. **To add food** to children's diets that will help them grow and protect their health.
2. **To teach** parents what they can do to improve their children's diets and to teach children to develop good food habits.

Reaching the Children

The first problem of all child-feeding programs is to reach the children. Of the programs that serve meals to children, most take place in the schools. However, more and more programs are being set up in health and welfare centers where mothers take their babies and young children.

Some school programs provide only a single snack such as a glass of milk. Others provide a complete breakfast or lunch. These programs often result in increased school attendance. One reason for young children dropping out of school in some areas is that they are so poorly

nourished they cannot learn.

In many communities the only feeding programs are in schools. They do not reach infants and preschool children. Thus, they do not reach the very children whose growth and health can be most badly hurt by lack of the right foods. They also do not reach expectant and nursing mothers. Yet, unborn babies and nursing infants are affected by what their mothers do and do not eat.

Serious illness from lack of the right foods has been found among many children under 5 in the developing countries. This is why efforts are being made to improve the diets of such children and also the diets of expectant and nursing mothers.

Maternal and child health centers often give food to mothers for use in feeding their children at home and may serve snacks to children at the center. Day care centers serve a noon meal to the children and often a mid-morning or afternoon snack. However, many communities have no day care centers, nursery schools, maternal and child health centers, or clinics through which mothers and young children can be reached.

Some mothercraft centers and nutrition rehabilitation centers serve three meals to children who have been ill or poorly nourished. In these centers the mothers help prepare and serve the meals. In this way they learn how to care for and feed their children well at home.

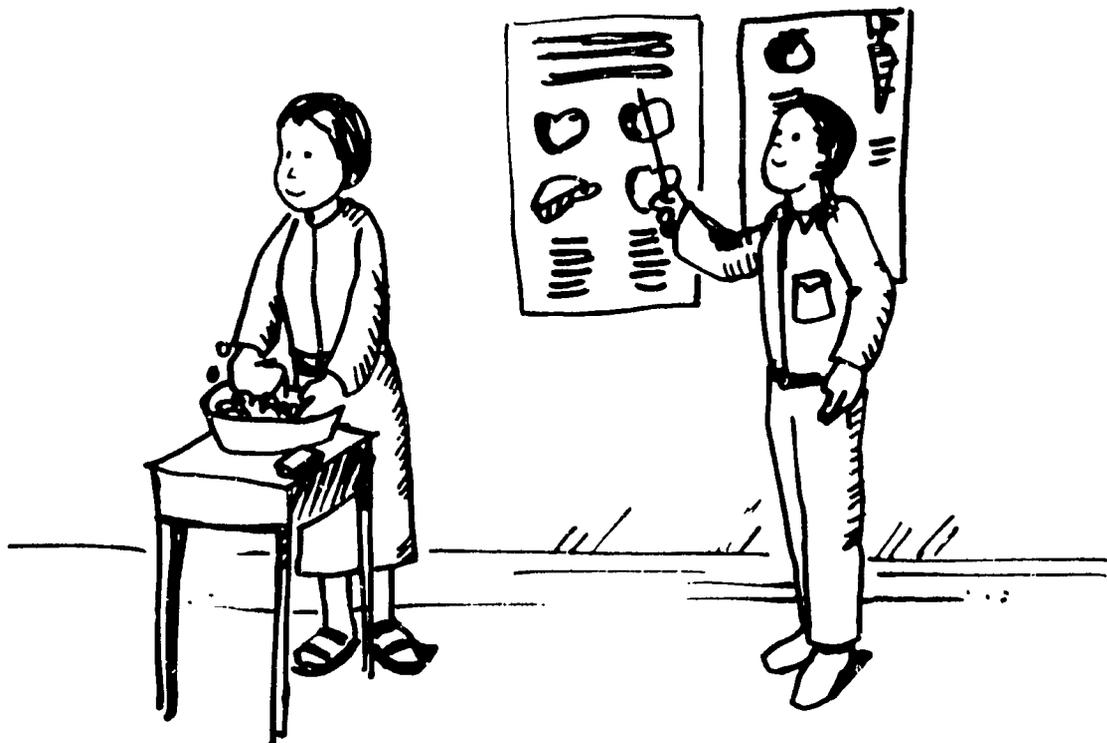
Reaching the Parents

Child-feeding programs can have good and lasting results only if the children are fed well at home. This is why working with parents is important.

Even the most generous feeding programs in schools or day care centers provide only a part of the food a child needs for growth and health. Sometimes, however, parents think that because their children are being fed at school or in a day care center they do not have to give them much to eat at home. Many schools and day care centers bring parents into the feeding program in some way. The parents can then learn

about the foods children are getting in the feeding program and how they can feed their children better at home.

Parents who are given foods to take home need help in learning how to prepare these foods. They also need to learn how to improve their own and their children's diets with foods they can either grow or buy themselves. This is why a good program invites parents to meet together in groups to talk about their children's diets and to learn how they can make better use of the foods they have at home.



What About Your Community?

1. Are children receiving food in school?
2. Are there any feeding programs for babies and preschool children?
3. What kinds of food are these children receiving?
4. Are any efforts being made to teach the parents and the children about foods?
5. Are there any programs that give food to expectant and nursing mothers?
6. Are there any mothers and children who need additional food who are not getting it?
7. Do you know of any children who are seriously ill because they are not receiving the right kinds of food?
8. Who in the community could help you interest the parents in improving their children's diets?

II. What You Should Know About Food

If you are working in a child-feeding program you need to know what kinds of food children must have to be healthy. You can then help parents know what to do to improve their children's diets and you can help children see why the kinds of food they eat are important.

You also need to know what can happen to children who do not eat what they need, so that you can help parents see that poor diets may lead to poor growth and to illness.

Its purposes

Every child needs food for three reasons:

1. To protect him from illness and keep all parts of his body working smoothly.
2. To help him grow and to keep his body in repair.
3. To give him energy for play and other activity.

No one food can do all of these things. Milk nearly can because it contains most, though not all, of the *nutrients* a child needs. In many countries, however, most children get little or no milk.

What foods contain

The nutritional value of a food depends on the amounts and kinds of nutrients it contains. Some foods contain nutrients that provide many calories. Calories provide energy.

Some foods contain a great deal of protein. Protein provides the body with building blocks for growth and repair.

Some foods are good sources of vitamins and minerals. Vitamins and minerals protect the body against disease and keep it running well.

Most foods contain several kinds of nutrients but no one food has all that the body needs. To get all the nutrients he must have for health and growth a *child must eat several different foods every day.*

Your job is to help parents and children learn what kinds of foods they should be eating to make a good or improved diet.



Foods for Energy

The basic foods

Foods that chiefly supply energy make up a very large part of the diets of most people. They are the staple or basic foods on which people depend to satisfy their hunger. They usually are the most inexpensive foods. In some places people eat hardly anything besides rice, or tortillas (flat cakes made of maize), or cassava.

Cereals, roots and tubers

The basic foods most common in developing countries are:

- (1) *the cereals—wheat, rice, maize, sorghum, millet, and ragi, and*
- (2) *the roots and tubers—potatoes, yams, and cassava (manioc).*

What else they provide

In addition to energy all these basic foods provide some protein, the nutrient needed for growth. But some provide more protein than others. None provides nearly enough protein for the needs of young children and expectant and nursing mothers.

Cereals contain more protein than roots and tubers. The protein in cereals, however, does not have all the building blocks needed for growth, as the protein in milk and meat does. Even large amounts of cereal will not give a child everything he needs for growth. If a small amount of dried milk is mixed in with the cereal, the nutritional value of the dish will be much improved.

The basic foods also provide some vitamins and minerals. Too often, however, these protective nutrients are lost before the foods are eaten. For example:

- Whole wheat grain contains iron, a mineral needed in the blood for strength. However, if the grain is made into white flour, much of the iron is lost.
- When rice is made shiny and white, most of the protective nutrients are milled away. More are lost if the rice is washed several times, and still more if it is cooked in a large amount of water which is drained off.



In some countries the staple foods like flour and rice are enriched by adding some of the protective minerals and vitamins removed in the milling process. Or staple foods are fortified by adding nutrients likely to be lacking in the diet of the people.

There are some milling processes that save the nutrients in cereal. For example:

- *Parboiled rice* has nearly all the nutrients contained in the grain. After harvesting, the grain is boiled or steamed, dried (often in the sun when home prepared), and pounded.
- *Bulgur wheat* is made through a similar process. Bulgur is more nourishing and keeps much better than wheat flour.
- Roots and tubers are very poor sources of protein. Cassava, in fact, contains very little protein, vitamins, or minerals.

Kwashiorkor, a serious disease of children who get very little protein, is found most often in areas where families live largely on cassava. Even the addition of some green leaves of the plant to the cassava pap will make it more nourishing. Adding some dried beans, groundnuts, or fish will also help.

Plantain and breadfruit are used as basic energy foods in some countries. These tropical fruits, like the roots and tubers, contain very little protein. They should be served with high protein foods if they are used in children's diets.

Some tropical fruits

Sugar

Sugar provides energy but is used for sweetening rather than as a basic food. It provides little besides energy no matter what its source—cane, palm, or beet. Too much sugar can make children's teeth decay, and it dulls the appetite.

Fats and oils

Animal fats and plant oils, even in small amounts, provide a great deal of energy. What else they provide depends on the type. In the developing countries the oils in most common use come from *red palms*, *groundnuts (peanuts)*, *coconuts*, *maize*, and *soybeans*. The fats from animal sources—*butter*, *ghee*, and *lard*—are usually scarcer and cost much more.

Red palm oil is a very rich source of vitamin A. Butter also contains this vitamin. Poor eyesight, even blindness, can be one of the results of lack of vitamin A. Vitamin A is very important for protecting the health of children and expectant and nursing mothers. Sometimes vitamin A is put into margarine—a fat made from several different oils. Even the oils and fats that do not contain vitamin A are useful in the diet. They help the body absorb vitamin A from other foods that do provide it. If a child is not getting enough energy-giving food, the protein in his body will be used for energy rather than for growth and body repair.

Foods for Growth

Foods from animals

The best foods for growth are those *that come from animals—meat, game, poultry, milk, cheese, eggs, fish, and some insects.* These foods contain much protein that is complete with all the building blocks needed for growth.

Children and expectant and nursing mothers particularly should have some protein-rich food every day. They need more protein than other people because they need it for both growth and body repair.

Even small amounts of animal food improve the diet greatly. It is better for a child to have a little animal food often than a larger amount only once in a while. For example, a mother may have only one cup of milk a day for her child. If so, she will do her child most good by giving him only a little of the milk at each feeding along with other food. In this way the complete protein in the milk will provide what may be missing in the proteins in the other food. This will help the child's body make better use of the other food.

Pulses and other legumes

Pulses and other legumes are also good foods for growth. They cost much less to raise or buy than foods from animal sources. Some examples are *soybeans, groundnuts (peanuts), dried beans, chick*



peas, gram, mung beans, lentils.

All legumes contain large amounts of protein. But since their protein is not complete, they should be eaten along with foods that provide some of the building blocks they lack. When beans are eaten with tortillas, for example, each food can do a better job in helping the child grow. Some other foods that fit together well in this way are—

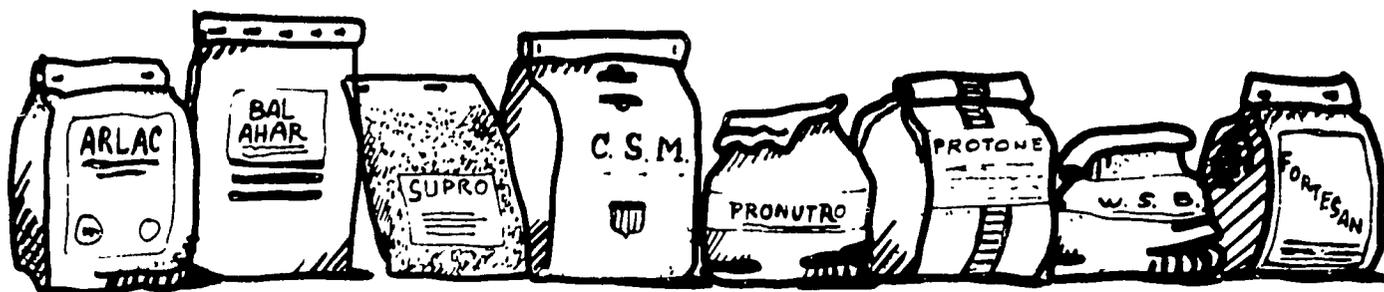
- lentils with wheat
- chick peas with millet
- mung beans with rice
- dried beans with maize.

Animal foods and legumes also provide important protective minerals and vitamins. Meats and most legumes are good sources of iron for the blood. Milk and fish small enough to eat whole provide calcium, a mineral needed by the bones. Most protein-rich foods are also good sources of the B vitamins. The B vitamins are a group of nutrients that play various roles in keeping the body running smoothly.

Some special products

Unfortunately, milk, fish, meat, and eggs are very scarce in some parts of the world. They also cost more than other foods. Many families cannot get them as regularly as they should. Therefore, some countries are using more plentiful sources of protein to make blends of food that together provide good protein with all the building blocks needed for growth.

For example, there is CSM. This is a blend of cornmeal, soy flour, and nonfat dried milk, with added minerals and vitamins. A serving of CSM gives a small child half of all the nutrients he needs daily. CSM was developed by the United States Government for use in the Food for Peace Program. High protein blends are used for child feeding in many countries now.



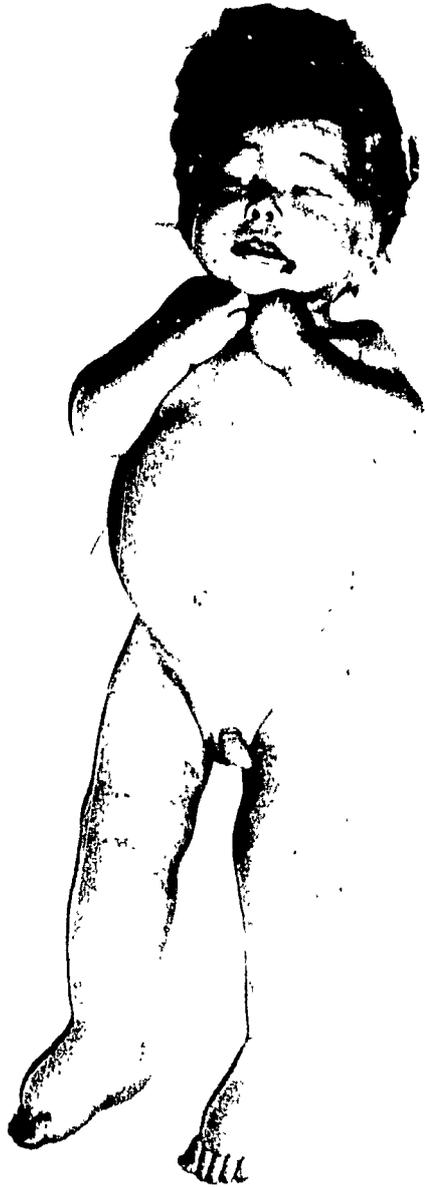
Different food staples are used to make the food blends but they all contain vitamins and minerals. Some examples are listed below:

| Product | Where Used | Main Ingredients Used | Product | Where Used | Main Ingredients Used |
|----------------|--------------------|--|----------------|-----------------------------|---|
| BAL AHAR | India | bulgur wheat, groundnut flour, skim milk powder | PRONUTRO | South Africa | maize, skim milk powder, groundnut, soybean flour, fresh protein concentrate, wheat germ, yeast |
| CSM | Worldwide | corn, soybean flour, skim milk powder | PROTONE | United Kingdom, Congo | maize, skim milk powder, yeast |
| DURYEA | Columbia | high lysine maize, soy- bean flour, skim milk powder | SUPERAMINE | Algeria, Egypt | wheat, chick peas, lentils, dried skim milk, sugar |
| FORTESAN | Chile | wheat, soybean flour, skim milk powder | SUPRO | East Africa | maize or barley flour, yeast, skim milk powder |
| INCAPARINA | Central America | maize, cottonseed flour, torula yeast | WSB | Worldwide | wheat, soy- bean flour |

**When
protein
is
lacking**

When children do not get enough protein they may not grow as they should. They may become seriously ill and even die with kwashiorkor or marasmus. These two diseases are oftentimes described as protein-calorie malnutrition.

In the developing countries both kwashiorkor and marasmus are common among children under 4 years of age. In kwashiorkor the child is weak and miserable, his skin becomes flaky, his hair becomes dry and discolored, and parts of his body swell. In marasmus the child becomes extremely thin and weak and his face looks like an old man's.



Kwashiorkor



Marasmus

**Fruits
and
vege-
tables**



Foods for Protection

Fruits and vegetables are important sources of the vitamins and minerals. Children need these nutrients to protect them against disease and to keep their blood, bones, eyes, skin, teeth, and gums in a healthy condition. Different fruits and vegetables provide different vitamins and minerals. Therefore children need to eat several kinds.

If a child eats something every day from each of the following groups of vegetables and fruits he will get most of the vitamins and minerals he needs:

1. *Dark green, leafy vegetables*—for example, spinach, kale, dandelion greens, mustard greens, beet tops, cassava leaves. These vegetables help the body make vitamin A which is needed for healthy growth and protection from illness. It is especially important for the eyes. Dark green, leafy vegetables are also good sources of iron and calcium and some important B vitamins.
2. *Yellow vegetables and ripe yellow fruits*—carrots, red and yellow sweet potatoes, mango, papaya, orange fleshed melons. These yellow foods also help make vitamin A in the body.
3. *Oranges and other good sources of Vitamin C*—guava, papaya, mango, the West Indian cherry, the Indian gooseberry, fruit of the cashew, tomatoes, raw cabbage. Vitamin C does several things for the body, but is especially needed by the blood vessels and gums.

When vitamins and minerals are lacking in the diet

The health of children who do not have enough vitamins and minerals can suffer in many different ways. One of the most common and serious problems is eye disease caused by lack of vitamin A. Too often blindness has occurred that could have been prevented if dark green leafy vegetables and yellow fruits and yellow vegetables were part of the child's diet. Children who develop kwashiorkor or marasmus from lack of protein often also show symptoms of lack of vitamin A.

When children lack vitamin C in their diets, their gums and joints may begin to bleed and their bones may not grow right. Many children do not get as much vitamin C as they need for good health.

Pellagra, beriberi, and other serious conditions can result from lack of B vitamins. Pellagra is widespread in areas where people live largely on maize or sorghum. Mainly it causes skin changes, diarrhea, and nervous symptoms. Beriberi has occurred most often among people living largely on polished rice. This disease, which can be fatal, mainly affects the nervous and digestive systems. In severe cases there is paralysis and damage to the heart.

Anemia caused by lack of iron in the diet is very common, particularly among infants and young children. Anemia makes children tired and weak. Foods rich in iron include green leafy vegetables, legumes, and meats.

Goiter, or enlargement of the thyroid gland, may be common among people living in areas far from the sea where the water and farmland are poor in iodine. In such areas iodine must be added to the diet. This is usually done by adding it to the salt regularly used by families in cooking, flavoring, and curing foods.

Some Other Things Children Need

Plenty of sunshine

Sunshine is also important for children's growth and health. With its help the body makes vitamin D. Without this vitamin the young child's bones will become soft and he will develop the crippling disease, rickets.

In countries with little sunshine, infants and young children must be given food to which vitamin D has been added. Nonfat dry milk from the U.S. has vitamins A and D added. In countries with lots of sunshine, addition of vitamin D should not be necessary. However, even in tropical areas children may not get the sunshine they need. In crowded cities many mothers keep their children indoors all the time. In some areas mothers cover so much of their children's bodies with clothing that the sun's rays cannot reach them.

Safe water

All children, even nursing infants—need to *drink some water every day*. The water supplied by the foods they eat is not enough for the body's needs. The water, of course, must be safe—in other words, free of harmful germs. If it is not safe it must be boiled for at least ten minutes before it is used for drinking.

Clean food

Harmful germs must also be kept away from food if it is to be safe for children. Unclean food or water can spread infectious diarrhea. This disease is a major

cause of death in children. Often called "weanling diarrhea", it occurs most often in children between ages of 6 months and 3 years. This is the period when children start to have foods other than their mothers' milk. The germs are carried to them on the new foods or the cups or spoons used in feeding.

In communities where the climate is hot, sanitation is poor, and water is scarce, it is very hard to keep the baby's food and surroundings clean. This is one reason why it is very important to encourage breast feeding.

A healthy mother

Health in the mother, before, during, and after pregnancy, is necessary for giving a child a good start in life. This means that young girls and expectant and nursing mothers must also eat foods that supply energy, growth, and protection.

When mothers have been poorly nourished, their babies are likely to be very small at birth and not as strong and healthy as other babies. They may not have the store of nutrients they should have at birth in order to get safely through the early months of life.

Poorly nourished mothers are unlikely to produce enough breast milk—usually the best and safest food for infants. The milk they do produce may be of poorer quality than that of well-nourished mothers. For example, breast-fed babies whose mothers have been living on a diet of highly

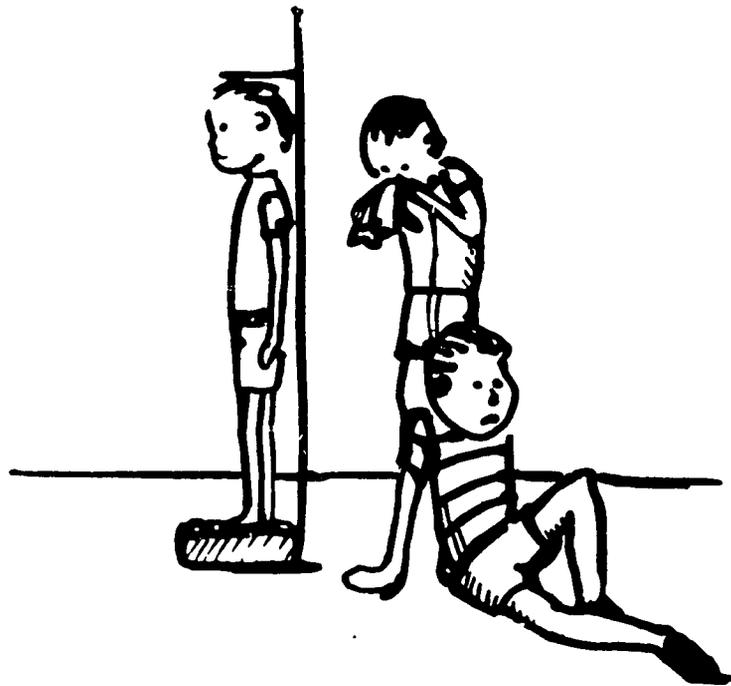


polished rice may develop infantile beriberi, which is often fatal.

If an expectant mother is poorly nourished throughout pregnancy, the baby growing inside her may use up the little store of nutrients she has in her body. When this happens the mother may become ill, and the baby's health is endangered. Many mothers suffer from lack of iron in the blood. They have a form of anemia that makes them tired, weak, and looking older than they are.

Some Danger Signals in Children

Children, especially older children, may be poorly nourished without developing such



severe diseases as kwashiorkor and marasmus. They will, however, be weak and subject to frequent illnesses, infections, and infectious diseases. It will take them longer to get over illnesses. Each illness will use up more of the nutrients in their bodies and so weaken them further. They may not be able to get through such childhood diseases as measles, whooping cough, and chicken pox. Poorly nourished children often die of diseases that well-fed children recover from quickly.

In your work with children in a feeding program, you should look for the following signs of poor health that may come from poor nourishment:

- The child's height and weight are below normal for his age and he is not gaining at all or as fast as he should.
- The child seems tired all the time and shows little interest in running about or playing.
- The child seems very tired after very little activity.
- The muscles of the child's arms and legs seem soft and weak.
- The child's lips are pale, rough, and dry, and he may have sores at the corners of his mouth.
- The child does not like to eat.
- The child can't seem to pay attention in school or learn easily.
- The child often suffers from colds and other infectious diseases, and takes a long time to get over them.

What About Your Community?

1. What is the staple food in your community?
2. What kinds of food are eaten along with this basic energy food?
3. How often do families eat food from animal sources—milk, eggs, meat, fish, poultry, edible insects?
4. Is there enough milk for all the children?
5. Do the mothers give their children pulses or other legumes?
6. Is there a good supply of green leafy vegetables and yellow fruits and vegetables all year round?
7. Do children eat the fruits that grow in the area?
8. Is the water supply safe for drinking?
9. Do infants and small children get into the sunshine frequently?
10. Have you noticed any signs of poor nourishment among the children you see?



III. Setting Goals to Fit Your Community

Some things you need to know

To work toward lasting improvements in the diets of mothers and children through a child-feeding program, you must first know your community. This means you must find out—

- what foods the mothers and children are eating at home.
- what kinds of food they are not getting that they need.
- whether the water is safe for drinking.
- what diseases children have that are caused by poor diet.
- whether many babies die in their first year.
- whether many children die between birth and 4 years of age.
- what local customs affect the diets of mothers and children.
- what foods are produced locally.
- what other foods *could* be produced locally.
- what foods are sold in the local markets and at what prices.
- what foods grow naturally in the area that could be used in the diet.
- how many mothers breast feed their babies, and for how long?

Who can help

A good way to learn what you need to know is to talk with community leaders and others concerned with the health and well-being of the mothers and children. If there is a nutrition committee, its members can help you. If not, you might get some help from—

- the head of the village or town
- religious leaders
- major landowners
- public health officials in the community—a doctor, a nurse, or nutritionist.
- other health workers
- the head of the local school, or interested teachers
- parents of children in the child-feeding program
- the agricultural extension worker
- anyone whom the government or an outside agency has sent to the community to work to improve children's diets and health.

Knowing your community well will help you see the chief problems that are keeping mothers and children from getting the food they need. It will also help you see the good points in local customs. You can then decide what you can do to help improve mothers' and children's diets.

**Customs
and
goals**

*Local customs that affect what
children and mothers eat*

In all communities there are some common ideas about food—what kinds of food to eat, when to eat them, how to prepare them, and what not to eat. These ideas have been handed down from parent to child for hundreds of years and so may be very hard to change. In some places there are beliefs and customs that keep mothers and children from eating the food they need. If there are such customs in your community, you should decide what changes you need to work toward. These changes will be the goals for your work plan.

The following pages give some examples of customs that often result in poor diets. You may know of others. After each custom is a goal you might put in your work plan if the custom is common in your community.

- *Custom:* Young children who have been weaned are expected to eat the same foods that are prepared for adults. Often the side dishes served with the rice, maize, pasta, cassava, or other staple food are too highly seasoned, harsh, or lumpy for young children to eat or digest. However, these side dishes may contain the family's only good source of protein—pieces of meat, dried fish, or beans.
- *Goal:* To get the mothers to set aside

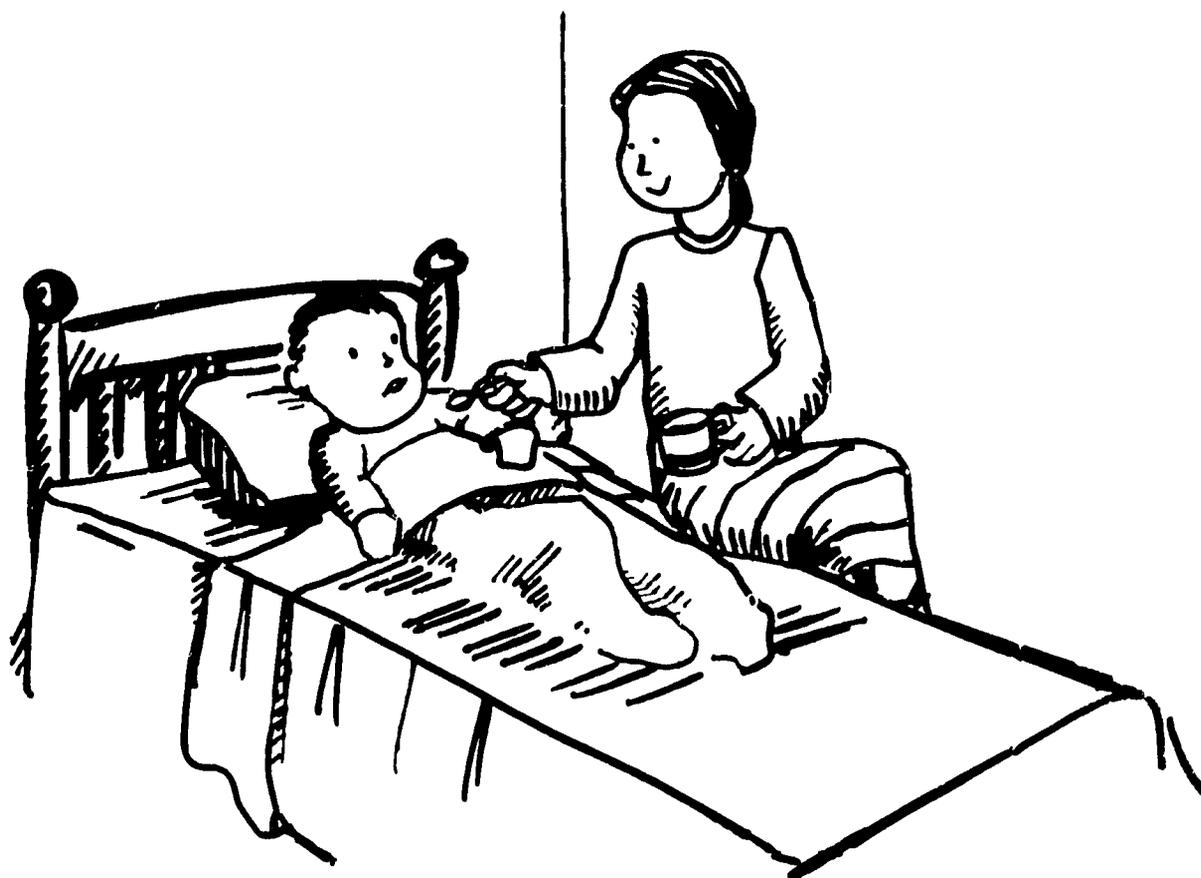
some of the food before seasoning it for the family and to make this food easy for the young child to eat. She would have to mash and strain the beans and scrape the meat or fish into small flakes before serving it to the child.

- *Custom:* The family serves only one or two meals a day. Young children cannot eat everything they need at one time or even in two feedings. Therefore, they either go hungry part of the day or eat snacks. In either case they are not likely to get enough of the foods they need for growth and protection. The food they eat for snacks may give them energy but little else. It may cut down their appetite for their meals.
- *Goal:* To make mothers understand that children must be fed well, in fairly even amounts, three times a day. They should be given fruits or other protective foods if they ask for food between meals.
- *Custom:* The adults in the family, especially the men, are served first. This custom often leaves children little of the foods important for growth.
- *Goal:* To get mothers to set aside part of each of the foods in the meal for the children before serving the adults.
- *Custom:* Certain needed foods are not given to children because of strong beliefs about them, for example:

Some harmful beliefs

- 1) That it is unmanly for boys or men to eat green vegetables. (This belief keeps growing boys from getting important vitamins and minerals.)
- 2) That fish is not good for children or for expectant or nursing mothers. (This belief can keep mothers and children from getting the protein they need.)

- 3) That a sick child should be fed very little. (This belief can keep children from having the food they need to get well. Sometimes it results in an already undernourished child developing kwashiorkor or marasmus.)
- 4) That there are "hot" and "cold" groups of foods and illnesses, and that "hot" foods should not be eaten with "hot illnesses" nor "cold" foods with "cold illnesses." (This belief also can keep



children from getting the kind of food they need to get well.)

- *Goal:* To help mothers understand that all children need foods for energy, growth, and protection at all times. *Sick children will not get their strength back unless they are fed well.*

**Build
on the
good
customs**

Some customs are good because they lead to the use of some very nourishing foods. You can help mothers build on good customs to make better diets. For example:

- *Custom:* Sauces containing small amounts of fish or meat are sometimes served with the basic food. Thus the meal contains some good protein.
- *Goal:* To get mothers to serve such sauces with the basic food to their children as often as they can. They might also use fish powders, dried milk, or egg to make the basic food more nourishing.
- *Custom:* Pulses, such as lentils, grams, or beans are often served with maize, rice, or cassava for the whole family. The pulses provide some protein.
- *Goal:* To get the mothers to use some of the pulses for the young children in a form that they can eat and digest. They should be well-cooked, their skins removed, and they should be mashed or strained. They can be added to meals in various ways, such as in soups, and mixed with cereals or vegetables.

**Cooking
Customs**

Cooking customs can either add to or lower food value. For example:

- The custom of using red palm oil in cooking provides a good supply of important vitamin A.
- The custom of boiling rice or vegetables in large amounts of water and then throwing the water away causes the loss of many vitamins and minerals.

You need to know how mothers cook the food they serve as well as what they serve.

**Encourage
breast
feeding**

Sometimes you may need to *help mothers keep good customs* that many mothers are giving up today. For example, mothers should be encouraged to breast feed their babies for a year if they can. They should be encouraged to breast feed longer, even to age 2, if they cannot obtain the foods a young child needs.

Many mothers today, especially in towns and cities, are bottle feeding instead of breast feeding their babies. Bottles and nipples that are not kept clean provide ways for germs to get into the baby's food. In many developing countries mothers are usually not able to keep the milk, bottles, and nipples as clean as they should be for the baby's safety.

Mother's milk is the safest and most nourishing food a baby can have. If the mother herself is healthy, her breast milk contains nearly all the nutrients the baby needs in his first 5 or 6 months of life. It contains much of what the baby needs as he grows older.

When the baby is 5 or 6 months old, however, he begins to need other foods besides breast milk. Little by little these foods should be added:

- mashed ripe fruits or juices
- cereals
- blended foods like CSM, or a local weaning food
- eggs
- bits of meat, fish, poultry
- vegetables

By the time the baby is a year old he should be eating everything the family

eats. He will no longer need mother's milk unless the family cannot afford the foods he needs.

Patterns of producing or buying food

What people eat or feed their children depends partly on their tastes and beliefs. It also depends on what food they can get either in the market or by producing it themselves. What food is available depends on many basic conditions, such as:

- the climate—the temperatures and the amount of rainfall
- the soil and water supply
- how many people the land must feed and support
- whether a variety of foods can be bought in the markets

In your community mothers may face serious problems in getting the right kinds of food for their children if it is a community where—

- *The families raise all their own food and farmland is scarce.*

In many places families use nearly all their land for raising cereals or roots or tubers—the filling foods that supply energy. They use very little land for growing pulses and other legumes. They use even less land for fruits and yellow and leafy green vegetables. They produce little, if any, milk or meat. Raising large animals for food costs much more than raising food from the soil. In some areas the land will not grow even enough of the basic energy food to keep people from going hungry part of the year.



Even if the harvest is good, much of it may be lost because it is not well protected from insects, rats, mold, and other spoilage. In many parts of the world, cassava is eaten instead of more nourishing foods like cereals or pulses because it is filling, grows well in poor soil, and can be left in the ground until needed. However, it provides little food value besides energy.

- *The families use all their land for cash crops like sugar, rubber, or cotton.*

This practice leaves the families with little or no land for growing food for themselves. Too often they cannot make their cash last until the next crop is ready to be sold. Too often they do not know how to get the most food value for their money.

- *Country people have crowded into a city in search of jobs.*

The foods carried in city stores are often not known to people who have always grown their own food. Having to choose from foods they are not used to adds to the problem of getting as much food value as possible for their money. The city stores also offer many other items that are new to these people. They are naturally tempted to buy some of them, but doing so may mean less money to spend on needed foods.

In your efforts to teach families about food, you can help them take important steps to improve their diets through the foods

**Goals
to
improve
the
food
supply**

they raise and the foods they buy.

The goals you set will depend on your community's problems. For example, you might try to—

- Help families learn to plant high-yield varieties of cereals instead of roots or tubers, where possible.
- Get families to use some land for growing legumes, green and yellow vegetables, and fast-growing fruits like the papaya.
- Get families to raise small animals like chickens or rabbits as sources of protein-rich eggs or meat.
- Get families to develop fish ponds, if possible.
- Get families who raise crops for cash to keep some of their land for home gardens.
- Help families learn which foods in the local markets provide the most food value for their money. For example, they might learn to choose parboiled or broken rice instead of polished rice, bulgur wheat instead of white flour, tiny shrimp and small fish instead of the large.
- Discourage the use of food money for foods that have little value for growth and health.

Many of these goals will require you to work closely with your local agricultural agent or whatever expert on food production is in your community.

What About Your Community?

1. Is there a local nutrition committee? If so, how can it help you in your work?
2. Has anyone made a nutritional study of the children? If so, what did the study find out about preschool children? What about school-age children?
3. What are the local beliefs and customs that might be keeping children and mothers from eating the foods they need? How could you help bring about change?
4. What local food habits should be encouraged?
5. Do the families grow most of their own food? Does the food supply of these families meet the nutritional needs of the children?
6. Is there a time of the year when there is not even enough basic food to go around?
7. How long do mothers nurse their babies?
8. Would it be possible for more families to have their own vegetable gardens and to raise chickens or rabbits at home? Could they make fish ponds?
9. Which pulses or other legumes could be grown under local conditions? Which leafy green vegetables and yellow vegetables and fruits?
10. What are the best food buys in the local markets?
11. Could families who must buy their food afford better diets for their children if they knew how to buy more wisely?



IV. Some General Rules for Teaching

In your work with mothers and children in a child-feeding program you are trying to bring about change. You are most likely to do so if you keep in mind a few general rules. These are:

1. *Make a plan with goals that are possible to reach.* List the goals in the order you hope to reach them.

Starting with what the mothers and children are interested in may lead to better diets more quickly. One goal that might be reached easily is that of teaching mothers ways of using the dried milk or CSM the program provides. Some goals may take a long time to reach—for example, getting families to change the foods they raise or to change their food habits or customs. It should be remembered that families who can be shown what a good diet can do for the health and growth of children are more likely to make such changes.

2. *Enlist the support of key leaders.* In most communities there are people who can be influential in encouraging mothers and children to learn how to improve their diets. You should seek out these leaders, tell them about your program and the goals you are striving for, and enlist their support. Key leaders may be the village chief, the wife of a village leader, an outstanding homemaker, the priest, or any person who has the respect of the community.

3. *Find opportunities for teaching.* If you are working with children, talk about the

food they are being served. If you are working with mothers show them how to prepare the food for children and let them taste it. If the children are with them, have the mothers serve the food to their children. When mothers or children find out that a food new to them tastes good they will begin to accept it. To encourage them, you should:

- See that the food served looks good. This will encourage mothers and children to taste it.
- See that the same kind of food is served several times. This will give them a chance to get used to it.

4. *Respect the ideas of the mothers and children.* By listening to what the mothers and children have to say, you can learn about their food habits and get some good ideas for teaching. You will learn which members of the group can help you influence others. Also, if you listen to them, they are more likely to listen to you.

5. *Begin with what people already know and do.* You can then show them how to do better. For example:

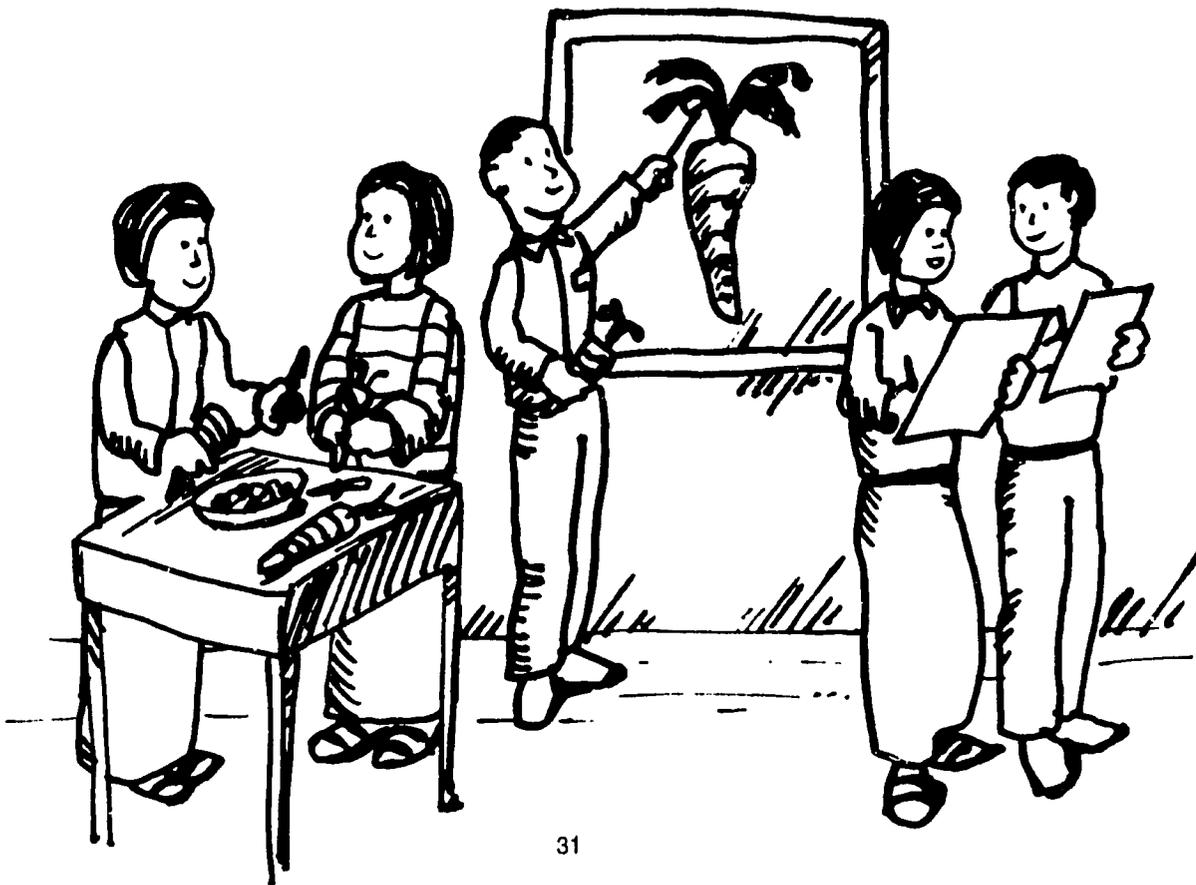
- If mothers often make a porridge with cassava or a cereal, you can show them how to—
 - add a little scraped fish, dried milk, or CSM to the porridge.
 - cook some cassava leaves or other greens to serve with the porridge.
- If mothers serve the liquid from soups and stews to infants, show them how to mash the solid ingredients and serve them

also. The solid food will give much more food value than the juice.

6. *Teach by example.* If your advice is to be followed, you and everyone else in the child-feeding program must follow it yourselves. For example, as part of teaching parents to protect children from germs, you must—

- always wear clean clothes
- wash your hands before preparing or serving food

- keep dishes, spoons, tables and places for storing food clean and free from flies and other insects
 - see that people serving food to children do not have contagious diseases.
- Protect your own health by eating the different kinds of foods the body needs. If there are special foods you are encouraging the parents to use, show that you, too, use and enjoy them.



7. *Help people learn by doing. For example:*

- If mothers participate in preparing and serving cassava leaves or other green or yellow vegetables to children, they are more likely to serve such vegetables at home.
- If a child has grown carrots in a school garden, he is more likely to take an interest in eating them. He is also more likely to be interested in what he is told about the value of yellow vegetables

8. *Point out how good nutrition is connected with things children and mothers want. For example:*

- A school boy may learn about the food value of vegetables, but he may leave greens on his plate at a school lunch. If he understands that greens will help him be strong like his favorite athlete, he may try them.
- Every mother wants her children to be healthy, but a mother may not understand the importance of a good diet. However, if she sees that a good diet will cure a child of kwashiorkor, she may decide to improve her child's diet.

9. *Always speak in terms the mothers and children understand. You are more likely to hold their interest if you—*

- Use simple words.
- Talk about foods without trying to explain the details of the nutrients—proteins, vitamins, minerals, and the like.

10. *Use pictures and other visual aids to help you make your points. Even simple drawings with chalk on blackboard can*

help your listeners follow what you are saying. Of course, when you are talking about foods that may not be well known to the mothers or children, or about how foods can be combined or prepared in different ways, it would be best to use the real foods and to give demonstrations. If you are using posters and charts, remember they should be simple and their meaning very clear. Each poster or chart should carry only one idea and contain few words.

You may be able to make models of foods from clay or wax. They should be the same size and color as the real things.

Give people time to get used to pictures or models that are new to them. Also, make sure that what you are showing and what you are saying are the same. For example, if you are talking about the local foods that can help a child grow, show pictures of those foods. Do not at this point show a picture of a poorly fed child. If you do your listener's attention will be divided between what they see and what they hear.

The same pictures and models may not interest both children and adults, so keep your audience in mind when you are choosing or making visual aids. Try showing a new visual aid to just a few people before you use it with a large group. This will help you to know whether it is easy to understand and interesting.

V. Working with Mothers of Preschool Children

If you are working in a feeding program for preschool children, your purpose is to help the mothers learn how to feed their children well at home. To do this for as many mothers as possible, you need to get groups of mothers to meet.

During these sessions, you will want to keep in mind the general rules for teaching listed in Chapter IV. You will also need to—

1. *Find out about the mothers' daily lives and the things they have to use in preparing food.*

If a mother spends long hours working in the fields, she may have very little energy left for the tasks of child care.

If a mother must gather her own fuel and carry water or if she lacks a stove, a cool place to store food, or other needed things, she may find it impossible to prepare food in the ways that are usually recommended.

To find out what problems the mothers face in feeding their children you should encourage the mothers to talk freely. They may be able to help you think of ways in which they can improve their children's diets.

2. *Show the mothers how to prepare the foods children need.*

Do this often. Tell the mothers what you are doing as you prepare the food. Let them and their children taste it.

The mothers will remember better how to prepare the food if they see you do it. They will be more willing to give it to their children if they find that it doesn't taste

bad.

Such a demonstration is likely to work best if you—

- Plan each demonstration carefully. Try it out in advance. Repeat it several times for each group of mothers.
 - Keep the groups small. This helps each mother feel that you are talking to **her**. There should be no more than 20 mothers in each group.
 - Allow about 15 minutes at most for each demonstration. Use the rest of your time talking with the mothers, answering their questions, getting their ideas.
 - Call on some of the mothers to help you prepare the food. This will make the mothers in the group feel sure they can do it themselves.
 - Use the same kinds of spoons and containers the mothers have in their homes. This is important when you are measuring anything. Often the spoons and containers mothers use at home are larger or smaller than those on which directions are based for using dried milk or the processed food blends. Unless the mothers know how to prepare these foods with their own spoons and containers, their children may not get the right amounts and the foods may not taste as they should.
3. *Select one subject for each meeting.* Almost any of the goals suggested in Chapter III might be the subject of a meeting. Which ones you choose would depend on the problems in your community.

Other subjects might be—

- How to prepare and use dried milk or processed food blends in feeding young children.
- How to prepare local foods that promote growth in a way that young children can eat them. For example, you could show mothers how to pound small dried fish into fish flour; or soak, peel, cook, and mash chick peas, lentils, or other legumes.
- How to combine local foods to get the most value out of each. For example, how to mix a cereal with mashed beans or lentils and some greens.
- How to prepare fruits for young children—ripe bananas can be mashed, for example.
- What legumes, green leafy vegetables, and fruits can be raised in home gardens.
- What foods to choose in the local markets that are low in cost and yet nutritious. For example, in some places broken grains of rice can be bought at a very low price, yet rice has the same food value whether the grains are broken or not.
- How to use processed food blends such as CSM in feeding infants and very young children.
- How to protect foods from germs, insects, and rodents.
- How to keep foods like milk, meat, fish, fruits and vegetables from spoiling. Some points you would emphasize:
 - Cover all foods and put them in as cool a place as possible.
 - Do not prepare more dried milk or

processed food blend than can be used at one time. (These foods do not keep well after being mixed with water.)

- Remember that since raw meat spoils quickly, especially in warm weather, it should be used as soon as possible.

4. *Encourage mothers to present their own ideas.*

Mothers can learn from each other. Give each mother a chance to tell or show the others how she prepares something for her child. This will make the mothers think about the kinds of things that they can do to give their children better diets. For example, you might—

- Ask the mothers how they prepare beans, small fish, or whatever food they can get locally that will help their children grow.
- Ask the mothers how they fix fruits or green or yellow vegetables so that the children will eat them.
- Ask the mothers how they teach their children to eat new and nutritious foods.

5. *Bring fathers into the program whenever possible.*

Fathers need to know the kinds of foods their children should have. Mothers need the fathers' support in trying to improve their children's diets. Therefore you might—

- Plan some meetings to interest fathers. Ask the local agricultural agent to give a talk at one of them on what foods needed by young children will grow locally and how to grow them.



6. Try to find out if your work is having an effect.

You will get an idea of what is happening if you—

- Talk to the mothers informally about the children's diet when they come to the center or clinic. Do they seem interested in learning more about good nutrition? Do they ask questions?
- If mothers come back for many meetings, very likely they are interested in learning from you. They **may** be doing some of the things they have been taught. If a mother comes only once in a while or not at all, you should try to find out why.
- Visit the mothers in their homes to see what they are serving their children and how they are preparing the foods.
- Follow the weight records of the children. Many local health centers give mothers records of their children's weight to take home. (See Appendix A.) Such records provide good clues as to whether or not the child is being properly fed. During the first 5 years of life a child should gain weight regularly. If he does not, it usually means the child is not eating enough of the right kinds of foods.

VI. Teaching Children in School Feeding Programs

If you are working in a feeding program for school children your purpose is to help each child learn about the kinds of foods he needs to grow and be healthy. Your teaching may take place during a lunch or snack period when the children's attention is naturally on food. However, the children may also be studying about food in their classes. If this is so, you should see that what you are teaching is closely tied in with what is taught in the regular classes. The general rules in Chapter IV should help in working with the children. You will also need to—

1. Use the foods the children are being served as the basis of your teaching.
2. Talk about the foods with the children

while they are eating. The children will listen best if you—

- Let the children do some of the talking and give their own ideas.
 - Show interest in what they say.
 - Speak in terms that have meaning for children. For example, becoming "strong" or "pretty" is more likely to interest a child than just being "healthy."
 - Try to keep the size of each group to no more than 35 children. If the group is too large, the children will not speak up.
3. Find out what the children already know or think about food.

By the time children go to school, they have already developed habits, likes and dislikes, and ideas about food. You need



to know what these are. Then you can begin by talking about the foods the children usually eat. As you get the children interested in what these foods do, you can go on to tell them about other foods they should eat and why.

One way of finding out what the children know is to ask the children what they know about local foods. (See questionnaire in Appendix B.) You will have to ask the younger children the questions as you talk to them. The older children can write down their answers.

The children's answers will give you much to talk about with them. The information will also be of help when you talk to parents and other members of the community about children's food needs.

4. *Stress the importance of cleanliness.*

Two ways of doing this are to—

- See that the children wash their hands before eating. Tell them why they are doing this. If the school does not have running water, you can—
 - line the children up in a row
 - pour a dipper of water over each child's hands
 - pass a cake of soap down the line
 - pour another dipper of water over each child's hands.
- Call the children's attention to the steps taken in the feeding program to keep food clean.

5. *Help the children learn by doing things themselves.*

Children learn more quickly from what they do than from what they see or hear. They can learn about foods from several kinds of activities. For example, you might ask the children to—

- Draw pictures or make models of foods they are learning about.
- Help prepare and serve the food.
- Help in the cleaning up.
- Carry out a project that shows how a good diet affects growth. For example, the children could—
 - keep records of their own height and weight.
 - watch the growth of two plants, one grown in poor soil, the other in rich soil.
 - raise two chickens, rabbits, or other animals, feeding one of the pair a good diet and the other a poor diet.
- Raise food at school—vegetables and fruits, chicken, fish—if the school can provide the space. A school garden gives children a chance to—
 - learn about some nutritious foods they have never eaten before. (They may learn to like the new foods and ask their families to grow and serve them at home.)
 - learn simple gardening methods.

(School gardening should always be supervised by a person who knows good gardening methods.)

□ contribute to the supply of foods for the school feeding program.

6. Give attention to how well each child is getting along.

Watch for the danger signals listed on page 20. The child's teacher can tell you how well the child is doing at school. The teacher can also tell you whether the child stays home from school often. You can

see during the meals or snacks whether the child is eating well.

If the child shows any of the danger signals, something important may be missing from his diet. Or he may be ill. He may need to see a doctor. You might be able to help the parents in arranging this.

School children do not grow as fast as younger children, but they do keep growing. With your help they can learn food habits that will help them grow and keep in good health.



Appendix A

Preschool Child's Health and Weight Chart

NOTES

Vertical column of 20 horizontal lines for notes.

MALARIAL SUPPRESSION

Year

JAN FEB MAR APR MAY JUNE
JULY AUG SEPT OCT NOV DEC

JAN FEB MAR APR MAY JUNE
JULY AUG SEPT OCT NOV DEC

JAN FEB MAR APR MAY JUNE
JULY AUG SEPT OCT NOV DEC

JAN FEB MAR APR MAY JUNE
JULY AUG SEPT OCT NOV DEC

JAN FEB MAR APR MAY JUNE
JULY AUG SEPT OCT NOV DEC

SMALLPOX VACCINATION

DATE OF VACCINATION _____
(as soon after 3 months as possible)
DATE OF SCAR INSPECTION _____
DATE OF RE VACCINATION _____
(between 4 and 5 years of age)

WHOOPING COUGH TETANUS AND DIPHTHERIA INOCULATION

DATE OF FIRST INJECTION _____
(at the age of one month or later)
DATE OF SECOND INJECTION _____
(one month after first injection)
DATE OF THIRD INJECTION _____

ANTI-TUBERCULOSIS VACCINATION (BCG)

DATE OF BCG VACCINATION _____
(BCG can be given immediately after birth)
DATE OF POST BCG TUBERCULIN TEST _____
(or date of recognizing scar due to BCG vaccination)

1 POLIO _____
2 POLIO _____
3 POLIO _____
MEASLES VACC _____

| | |
|----------------|------------|
| WELFARE CENTRE | CHILD'S No |
| CHILD'S NAME | SEX |
| FATHER'S NAME | |
| MOTHER'S NAME | |

| | |
|-----------------------------|-----------------|
| DATE OF BIRTH | DATE FIRST SEEN |
| NAME OF VILLAGE OR COMPOUND | |

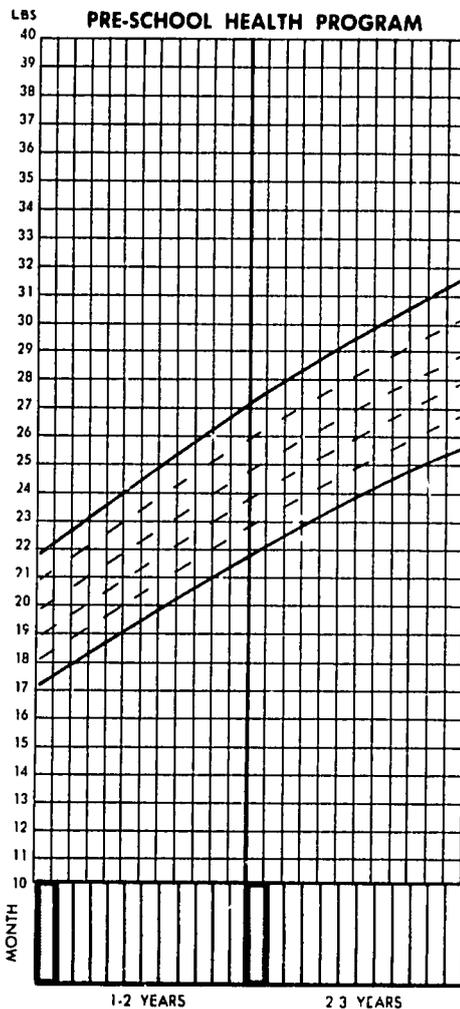
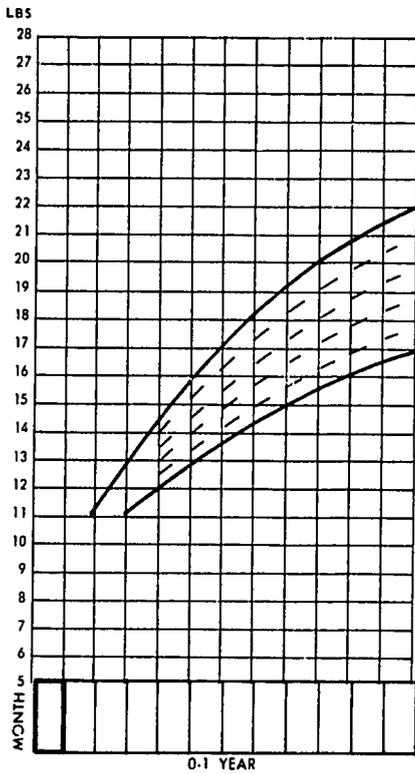
| BROTHERS AND SISTERS | | |
|----------------------|-----|---------|
| YEAR OF BIRTH | SEX | REMARKS |
| | | |
| | | |
| | | |
| | | |

Provided by
The Agency for International Development
U S Department of State

July 1971 - 400,000

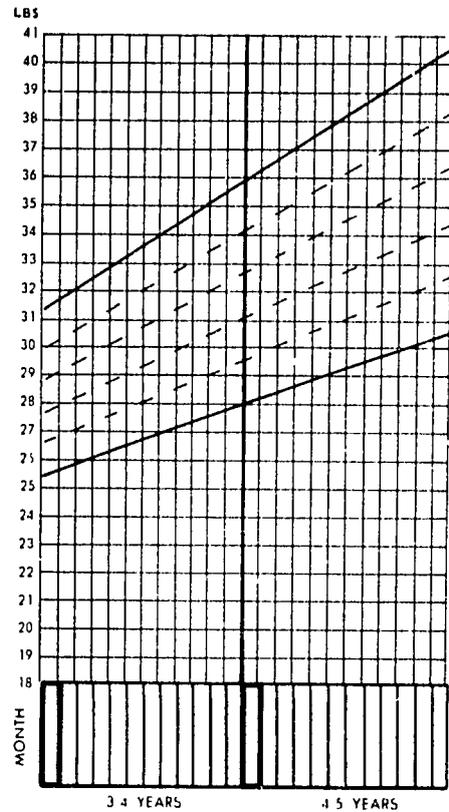
CHILD'S HEALTH AND WEIGHT RECORD OVER FIRST FIVE YEARS

MAJOR ILLNESSES TO BE ENTERED ON CHART

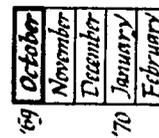


UPPER LINE—This represents the average weight of healthy and well-fed children

LOWER LINE—The weight of children should be above this line. A steady upward progress of the weight record is more important than its position.



INSTRUCTIONS TO NURSE OR CLERK FOR COMPLETING CHART—Find out the month of birth of the child and fill this into all the black edged spaces, then fill in the other months. Also mark off the years as shown.



When the child comes for weighing make a large dot in that month's column against the weight. Connect this with the last dot.

Appendix B

Questionnaire for Learning Children's Food Habits

NUMBER OF CHILDREN EATING SPECIFIC FOODS

| | Morning | | | Mid-day | | | |
|---|---------|-------|-------|---------|-------|-------|--|
| | Boys | Girls | Total | Boys | Girls | Total | |
| I. LOCAL FOODS ¹ | | | | | | | |
| a. <i>Energy Foods</i> | | | | | | | |
| Cereals | | | | | | | |
| Roots, tubers | | | | | | | |
| Fats, oils | | | | | | | |
| Sugars | | | | | | | |
| b. <i>Protein-Rich Foods</i> | | | | | | | |
| Animal foods | | | | | | | |
| Legumes | | | | | | | |
| c. <i>Protective Foods</i> | | | | | | | |
| Green, leafy vegs. | | | | | | | |
| Yellow fruits | | | | | | | |
| Others | | | | | | | |
| II. IMPORTED FOODS ^{II} | | | | | | | |
| a. <i>Energy Foods</i> | | | | | | | |
| b. <i>Protein-Rich Foods</i> | | | | | | | |
| c. <i>Protective Foods</i> | | | | | | | |

¹ Foods produced in the community, or close to the community

^{II} Foods from another country, or from another area within a large country.

Appendix C

Publications that may help you do your job:

1. *Child Nutrition in Developing Countries*; by D. B. Jelliffe, Office of Nutrition, Technical Assistance Bureau, Agency for International Development, U.S. Department of State, Washington, D.C. 20523.
2. *Food for Peace Around the World*; Agency for International Development, Department of State, Washington, D.C. 20523
3. *Health Education of the Tropical Mother in Feeding Her Young Child*; by D. B. Jelliffe and F. John Bennett, Public Health Service, Mental Health Administration, Maternal and Child Health Service, U.S. Department of Health, Education and Welfare, Rockville, Maryland.
4. *The Protein Gap*, Office of Nutrition, Technical Assistance Bureau, Agency for International Development, Department of State, Washington, D.C. 20523
5. *Child Care*, by M. E. Keister; Food and Agriculture Organization of the United Nations, Rome, Italy.
6. *Learning Better Nutrition*; by Jean A. S. Ritchie; Food and Agriculture Organization of the United Nations, Rome, Italy.
7. *Homemaking Handbook*; Extension Service, U.S. Department of Agriculture, Washington, D.C.
8. *Encouraging the Use of Protein-Rich Foods*; by John Fridthjof, Food and Agriculture Organization of the United Nations, Rome, Italy.