Nutrition of children
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**Issue 11, April 2002**

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The opinions expressed in this publication are those of the authors and do not necessarily reflect the policies and views of Unicef.
Dear Readers,

The nutritional status of many Cambodian children is poor. One of the major causes of this situation is ignorance; many parents lack knowledge on hygiene and good feeding practices for their children.

In this regard this issue of Health Messenger on nutrition is very useful. The magazine will help you to develop or refresh your knowledge on nutrition, to better assess the children’s nutritional status and provide relevant information and appropriate counselling to parents whose children are malnourished.

Nutrition is fundamental for our country. To succeed in our development, we need a healthy and well-fed population who can learn, grow well and work effectively.

I would like to express my sincere gratitude to Unicef for the excellent initiative of sponsoring this issue.

I wish you an excellent reading of the magazine.

Pr. Eng Huot
Director General for Health
Ministry of Health
ការប្រព្រឹត្តិការណ៍របស់ក្រុមហ៊ុនបេក្ខជនឈ្នះមនុស្ស្ កំពូលគ្រួសារ្ ក្នុងប្រទេសកម្ពុជា នៅឆ្នាំ 2002 នៅប្រទេសអាមេរិក ។

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This article is an introduction to nutrition. It discusses the importance of a daily balanced diet and the different types of malnutrition, which affect both individuals and society.

Why food is important

Food is what people eat and drink every day to stay alive and healthy. Nutrients are the part of the food that our body uses:

- To produce energy for our physical activity and for all normal body functions (such as breathing, mental activity and blood circulation).
- To provide us with the necessary materials for building and repairing body tissues.
- To protect us from diseases and infections and help us to recover.

We need different types of nutrients. No one food provides all the nutrients needed to be healthy and different foods produce different nutrients. This is why we have to get a variety of foods every day. Moreover, the amount and type of nutrients we need depend upon whether we are young or old, male or female, sick or healthy and whether we do a lot of physical work or not.

To help us meet our nutritional needs, foods have been classified into three groups. These allow us to have a balanced diet (all the foods a person eats), i.e. to get all the nutrients we need to be healthy. A balanced diet means that we should eat foods from each of the three food groups every day, which is an essential condition for good health.

Three food groups

Foods providing the same or similar nutrients are grouped together. Foods from each group can be chosen according to taste, season, price, and of course availability. There are three main food groups:

1. Body-building foods: contain proteins (a type of nutrients), which are used by the body for growth, maintenance and repair of body tissues. They include breast milk, tofu, soybeans, mung beans, peanuts, fresh milk, eggs, fish, chicken, duck, pork, beef, crab, shrimp, squid, eel, frog, and other animal meats.
1. **Body-building foods**: are good sources of carbohydrates or fats (types of nutrients), which are used by the body to provide fuel for physical activity. Foods rich in carbohydrates are rice, noodles, potato, sweet potato, taro, yam, corn, bread, sugar, sugar cane and honey. Those high in fats are coconut milk, cooking oil and animal fat.

2. **Energy foods**: are good sources of carbohydrates or fats (types of nutrients), which are used by the body to provide fuel for physical activity. Foods rich in carbohydrates are rice, noodles, potato, sweet potato, taro, yam, corn, bread, sugar, sugar cane and honey. Those high in fats are coconut milk, cooking oil and animal fat.

3. **Protective foods**: contain essential vitamins and minerals (types of nutrients), which work with the body-building and energy foods in preventing and fighting diseases and illnesses. They contain substances called micronutrients, which include vitamin A, iodine and iron among many others, and are necessary for good health. Foods in this group include mainly fruits and vegetables, but animal foods are also very important sources of these micronutrients.
Knowledge about the three food groups is useful for making sure that every meal contains at least one food from each group.

**Malnutrition**

People becomes malnourished when they do not eat enough food and/or they do not eat the proper types of foods their body needs to stay healthy. Good nutrition is far from being only a question of quantity. It is also a question of quality, i.e. to eat a variety of foods that can provide all the nutrients needed to be healthy. Poor nutrition affects both individuals and the society as a whole.
Individuals

- Pregnant women are more at risk of illness, premature delivery, having low birth weight babies who have increased risk of illness and death, and other complications related to pregnancy and delivery.
- Infants and young children grow slowly and have more infections. Their brain develops slower leading to lower learning capacities and poor school performance. They become short and weak adults.
- Adults are less active and productive and have less capacities to care for their families.

Society

- As malnutrition results in disability and limited mental and physical growth in individuals, the whole society is affected and the national socioeconomic development is hampered.

Children at risk of malnutrition (protein-energy malnutrition)

Children under the age of 5 are very vulnerable to malnutrition. As they grow fast, they also become malnourished fast. If their diet does not provide enough energy, protein and other nutrients to cover their needs, they develop protein-energy malnutrition.
Being malnourished, children are weak and lack energy. Their resistance and capacity to fight infections is also decreased because they lack proteins and vitamins to produce antibodies.

**Risk factors of malnutrition for children**

**If the mother:**
- Has pregnancies too close together, her breast milk may be of poor quality and may not feed the baby properly.
- Does not provide breast milk frequently enough and/or stops breastfeeding too early.

**If the family:**
- Has too many children, there may be less food for everyone and the mother may have less time to care for the infant.
- Lacks knowledge regarding proper nutrition and especially complementary feeding.

**If there is an infection:**
- Such as diarrhoea, whooping cough or measles, which increase the risk of malnutrition. Worm infection can also contribute to malnutrition.

**If the baby:**
- Is born too small (less than 2.5 kg).
- Does not gain enough weight.
Micronutrient malnutrition

Micronutrients are the vitamins and minerals that our body need in very small amounts. The lack of micronutrients such as vitamin A, iron and iodine, have severe consequences for the health of mothers and children. Micronutrient malnutrition is often called the “hidden hunger”. It means that the signs of deficiency are not always apparent, even though the person is deficient.

Vitamin A Deficiency (VAD)

Vitamin A deficiency occurs when children do not consume enough natural sources of vitamin A from foods or do not receive vitamin A supplements on a regular basis. The first and most easily detected sign of VAD is night blindness, known as “kwak moin” in Khmer (when a child or a pregnant woman has difficulty seeing things in dim light or at night). The people most at risk of vitamin A deficiency are infants and children from 6 months to 6 years of age, infants who are not breastfed or do not receive proper and nutritious complementary food and pregnant and lactating women.

Effects of VAD

- **On growth and development**: slows down the child’s growth, especially for the foetus if the mother is suffering from vitamin A deficiency.
- **On the immune system**: weakens the body’s natural barriers against infections; increases the likelihood that measles or prolonged diarrhoea progress to more severe forms of these diseases.
**Vitamin A supplement**

- **Blue capsule**: for 6-11 months old children
- **Red capsule**: for 12-59 months old children

**On vision**: Can cause night blindness, and in severe cases can lead to permanent blindness by irreversible damage to the cornea.

**VAD prevention**

- Encourage mothers to feed colostrum to their newborn babies and give exclusively breast milk for the first 6 months of life. No other milk or fluids should be used. Recommend that women continue breastfeeding at least up to two years of age.
- Around 6 months of age begin feeding the child with other foods in addition to breast milk. Vegetables should be fried in fats or oil so that the body can better absorb and use vitamin A.

**Foods rich in vitamin A**:
- Colosrum and breast milk; dark green leafy vegetables such as kang kong, ivy gourd leaves, amaranth, pumpkin leaves; yellow/orange vegetables such as pumpkin, sweet potato, carrot, and yellow/orange fruits such as ripe mango and ripe papaya; chicken and duck eggs with yolk; chicken meat; animal liver; small fish with liver intact, chilaing and pra fish.

**Foods which help vitamin A absorption in the body**:
- Fats and oils.
Children from 6 to 59 months of age should receive a high dose of vitamin A supplement 2 times/year. Make sure mothers know about the distribution dates for vitamin A capsules to bring their children to receive their supplement.

Pregnant and lactating women should increase their intake of vitamin A rich foods. Postpartum women should also receive a single vitamin A capsule within eight weeks after delivery.

Iron Deficiency Anaemia (IDA)

Iron is a mineral essential to the body. It helps the body to form red blood cells, which carry oxygen to the body tissues. IDA is the most severe degree of iron deficiency. The blood does not contain enough red blood cells and a person with anaemia is said to have “thin” and “weak” blood.

Effects of IDA

IDA increases the risks of:

In women
- Postpartum haemorrhage.
- Infections.
- Maternal mortality.

In foetuses
- Foetal growth retardation.
- Prenatal mortality.
- Premature baby.
- Low birth weight.

Foods rich in iron:

- Red meat
- Legumes
- Dark green leafy vegetables
- Iron-fortified cereals
- Nuts
In children

- Retards normal psychomotor and mental development.
- Decreases learning capacity.
- May lead to behavioural problems such as inattention, irritability and feeling of insecurity.
- Reduces resistance to infections.
- Retards normal language development.
- Lowers capacity for physical activity.

IDA prevention

- Pregnant women should eat a variety of foods especially those rich in iron.
- Pregnant women should take iron tablets, which are necessary for the development of the foetus. If the mother’s blood is rich in iron, she can pass on enough iron to her foetus before birth.
- Children should be exclusively breastfed for the first six months and afterwards have a balanced diet containing food rich in iron, in addition to breast milk.
- Children and pregnant women should not drink tea. It partly prevents the absorption of iron by the body.
- Fruits or juices, which taste sour like orange and pineapple and animal food, help the body absorb iron. These should be taken with meals which contain plenty of iron.
- Children should live in clean surroundings, use toilets and wear shoes where possible to prevent hookworm and whipworm infections, which lead to anaemia.
- Infectious diseases like malaria should be controlled and treated as they can also lead to anaemia.

Iodine Deficiency Disorder (IDD)

Iodine is an essential micronutrient primarily found in shellfish and other sea foods. Iodine is most commonly consumed through iodized salt (salt that is mixed with iodine). It contributes to the normal functioning and development of the brain and body. Failure to consume adequate iodine results in Iodine Deficiency Disorder (IDD).
Effects of IDD

Iodine deficiency affects human health in several ways. It may cause a variety of problems:

- Mental retardation or cretinism
- Miscarriage, stillbirth
- Prenatal and infant mortality

The most noticeable physical sign of IDD is an enlarged thyroid gland (a growth showing at the neck). It is called a goiter. People of all ages and both sexes can be affected by IDD. The most vulnerable to IDD are pregnant women and their foetuses, and school-aged children.

Foods rich in iron: liver, animal internal organs (heart, kidney), meat, shellfish, beans, green leafy vegetables such as kang kong, ivy gourd, Chinese kale.

Foods rich in vitamin C and animal products, which help in the absorption of iron in the body: vitamin C- guava, orange, lemon, pineapple, tomato; animal products- beef, pork, chicken, liver, fish.

Effects of IDD on society

The socioeconomic development of a society may be slowed down because:

- Many people in the community are mentally slower and less energetic than they should be. Children and adults with mental retardation and physical disabilities due to severe IDD may be a burden on their families and for the society.
- Iodine deficient children are difficult to educate. They are likely to have low intelligence and poor school performance.
Prevention of IDD

- Use iodized salt instead of non-iodized salt, both as table salt and for cooking; encourage people to improve their intake of iodine-rich food, if they have access to seafood.
- Promote exclusive breastfeeding of infants from birth to 6 months. Breastmilk contains enough iodine if the mother does not suffer from IDD.

Rich sources of iodine: shellfish; seafood such as shrimp, crab, squid, fish, seaweed; iodized salt.
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ដូច្នេះដែលកុមារៈគឺបានចូលរួមក្នុងក្រុមនេះ។ 

**Nutritional Status of Children Under 5 Years by Age in Months**

**Underweight**

**Stunting**

**Wasting**

*CDHS 2000*
The health and nutrition status of Cambodian children remains among the lowest in the world.

Both maternal and infant mortality are the highest in South-East Asia. Of 100 children, 12 will die before their fifth birthday. Too many mothers are malnourished, anaemic, or suffer from vitamin A deficiency. As a result from the time of their birth, the health status of numerous Cambodian babies is poor.

We should now look more in detail at the different types of malnutrition, based on the results from the year 2000 Cambodia Demographic and Health Survey (CDHS 2000).

Nutritional status of Cambodian children

Among the children assessed, 45% were underweight and stunted, 15% were wasted and 4% severely wasted.

Underweight: the child has a low weight for his/her age
Stunting: the child is short for his/her age
Wasting: the child is skinny and has a low weight for his/her height

Observe the three curves of underweight stunting and wasting on page 14. You see them rapidly growing around 6 months of age. This is the time for introducing complementary foods. If the mother does not prepare the complementary feeding in hygienic conditions or feed her child with the right foods for the right number of meals every days, malnutrition may result. There is an urgent need to improve Cambodian mothers’ knowledge about health and proper feeding.

As a matter of fact, the survey also shows that the number of malnourished children decreases with the education level of the mother.

Good nutrition for children is fundamental for the development of our country. But the nutritional status of Cambodian’s children remains one of the worst in the world. We will explore the main causes of malnutrition and present the national strategy on nutrition.

Wasting increases with the birth order of a child, i.e. younger children are more likely to be wasted than the older ones. In poor household particularly, more children means more “competitors” for a limited quantity of food.
Micronutrient deficiencies

Iron Deficiency Anaemia (IDA)

Iron deficiency anaemia is a serious problem. Of children under five years of age surveyed in the previous years, about two third were anaemic. Of infants of 10-11 months, about 90% were anaemic. Of these children only a small percentage, 2%, is severely anaemic.

Vitamin A Deficiency (VAD)

Vitamin A deficiency is a public health problem, if more than 1% of children under five years of age suffer from night blindness. A Helen Keller/MoH survey conducted in year 2000 showed a night blindness prevalence of 2% in some areas.

Iodine Deficiency Disorders (IDD)

Based on the National Goiter survey conducted in 1997 by MoH, the TGR (Total Goiter Rate) was 17%. The Salt Iodization
programme has been implemented since 1997 and has faced many constraints such as human and financial resources and private sector involvement. From the CDHS 2000, only 12% of children surveyed were living in a house using iodized salt.

**Causes of malnutrition in Cambodia**

To explain malnutrition in Cambodia, there is not one simple reason. The situation is complex because there are many different reasons, at different levels, often linked together and reinforcing each other.

To understand the process leading to malnutrition, we can consider the causes at two levels.

### Causes at the individual level

- **Inappropriate breastfeeding:** see article page 45.
- **Inappropriate feeding:** an insufficient amount and/or inappropriate kinds of foods are consumed. To this situation there are deeper causes at the family and society level.
**Infectious disease:** lead to a loss of appetite and lower the body’s capacity to absorb the nutrients efficiently.

Infectious diseases and malnutrition reinforce each other and create a cycle that can lead to severe malnutrition or death.

As an example, diarrhoea is frequent and more severe in malnourished children. Even minor health problems such as the common cold are usually worse, last longer or can lead to complications like pneumonia.

Childhood illnesses are killing too many children under the age of five in Cambodia. From the CDHS 2000, 20% of the children had an ARI (Acute Respiratory Infection) in the last 2 weeks. 19% of them had watery diarrhoea. It is important to note that more than half of them were given less food than the usual diet. This is another example of a wrong feeding practice, as sick children need more nutritious food to fight infection.

**Causes at the family and society level**

**Food insecurity:** in some areas households have no regular access to enough nutritious foods.

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<th>Infectious diseases</th>
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<td>Higher need for nutrients</td>
<td>Loss of weight, cough, fever</td>
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<td>Loss of appetite</td>
<td>Retarded growth</td>
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<tr>
<td>Reduced capacity to absorb and utilize nutrients</td>
<td>Weak immune system</td>
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**Causes at the family and society level**

**Food insecurity:** in some areas households have no regular access to enough nutritious foods.
Inadequate maternal and child caring practices: in the CDHS 2000, 58% of the women surveyed were anaemic and 8% reported night blindness.

The birth weight is a determinant factor for the child health. Other and past surveys give results ranging from 15 to 20% of low birth weight babies. They also showed that many women reduce their diet during pregnancy and especially during lactation. The combination of a low nutritional status of mothers, often a heavy workload and the reduction of the diet result in low birth weight.

Wrong feeding practices of children are widespread for breastfeeding (see page 45) and feeding children (see page 59).

Poor water and sanitation and insufficient access to health services: very few households have access to a drinking water pipe. Many households take their drinking water from a river, pond or lake during the dry season. If the mother does not boil water she exposes her children to infectious diseases. Such a simple practice as regularly washing one’s hands is too rarely followed.

Cambodian people do not often use the medical services, especially the public health services. Immunization coverage and supplementation of vitamin A are still too low.
But behind all these causes, there are more general causes linked to the social and economic development of our country: poverty, lack of education, especially among women and lack of human, organizational and financial resources.

The National Policy on nutrition

The strategy of the Royal Government of Cambodia against malnutrition is presented in the National Nutrition Plan of Action and the Cambodian Nutrition Investment Plan (CNIP).

The vision is to ensure a continuous access by all Cambodian people to sufficient and adequate food, to give access to basic health, education and care services and safe drinking water.

We saw that there are many causes of malnutrition. The response to malnutrition in Cambodia necessarily needs to involve many sectors. How can we give everybody a regular access to food, without also reducing poverty and promoting rural and agricultural development?

The CNIP for 2002-2007 sets the major objectives for the reduction of malnutrition:

- To include nutrition as a priority in the development plan of Cambodia and the strategy for poverty reduction.
- Promotion of rural and agricultural development
To significantly reduce Protein-Energy Malnutrition in children under the age of 5.

To eliminate iodine and vitamin A deficiencies.

To reduce significantly anaemia in children and women.

To increase access of pregnant women to antenatal care, in order to follow-up their weight gain.

To reduce the number of low birth weight babies.

To reduce the level of malnutrition of women of reproductive age.

To increase the number of mothers giving colostrum and who exclusively breastfeed for 6 months.

The strategy as set in the CNIP recommends a community-based approach with a strong focus on actions at the commune and household level. This strategy has to be based on existing programmes, which have already gained the know-how on community mobilization and cooperation between various partners.
The National Maternal and Child Health Centre

Within the Ministry of Health, the nutrition unit of National Maternal and Child Health Centre (NMCHC), is responsible for the implementation of the National Nutrition Programme.

Over the past years the NMCHC has been active in:

- Promoting exclusive breastfeeding by training health staff in breastfeeding counselling.
- Developing a National Infant and Young Child Feeding Policy.
- Developing a draft “Regulation for the Marketing of Breast Milk Substitutes”.
- Implementing the vitamin A programme especially the routine vitamin A capsule distribution for under five years old children and for lactating women.
- Controlling iodine deficiency disorders by providing iodized oil capsule to women of reproductive age in some high risk provinces and promoting the use of iodized salt.
- Promoting the distribution of iron/folate supplements on a daily basis to pregnant women and piloting the weekly iron/folate supplementation to women in reproductive age especially women working in garment factories, schoolgirls and women living in the communities.

The National Maternal and Child Health Centre

Within the Ministry of Health, the nutrition unit of National Maternal and Child Health Centre (NMCHC), is responsible for the implementation of the National Nutrition Programme.

Over the past years the NMCHC has been active in:

- Promoting exclusive breastfeeding by training health staff in breastfeeding counselling.
- Developing a National Infant and Young Child Feeding Policy.
- Developing a draft “Regulation for the Marketing of Breast Milk Substitutes”.
- Implementing the vitamin A programme especially the routine vitamin A capsule distribution for under five years old children and for lactating women.
- Controlling iodine deficiency disorders by providing iodized oil capsule to women of reproductive age in some high risk provinces and promoting the use of iodized salt.
- Promoting the distribution of iron/folate supplements on a daily basis to pregnant women and piloting the weekly iron/folate supplementation to women in reproductive age especially women working in garment factories, schoolgirls and women living in the communities.
Developing with various partners a new yellow card (see page 27)

In the future the nutrition unit will continue to focus on the following objectives:

- To increase vitamin A supplementation to post-partum women and children under five years of age.
- To reduce anaemia in women of reproductive age.
- To increase the use of the yellow card for growth monitoring of children under five years of age.
- To increase the consumption of iodized salt in target districts.
- To implement a Baby Friendly Hospital Initiative in target hospitals.
- To introduce a Baby Friendly Community Initiative into rural areas and villages.
- To pass the Regulation for Marketing of Breast Milk Substitutes to become law.

The task of addressing malnutrition in Cambodia is daunting as seen in the results from the CDHS 2000. The NMCHC lacks the needed resources, both financial and human, to respond to this challenge.

If Cambodia wants to increase its speed on the road to development, we need a better-fed and active population who can learn, grow healthily and develop its skills. To succeed in our development, nutrition is fundamental.

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To measure growth is to measure health
Growth Monitoring

By: Dr. Phim Loan and Dr. Yang Sonavy, National MCH Centre

Growth monitoring is an important activity for assessing and following childrens’ health status. A child who grows regularly and well is healthy. This article explains how to do the monitoring and properly use the growth chart for children under the age of five.

What is growth monitoring

To monitor the growth of a child is to regularly check his/her weight, usually every month, and to record the results on a chart (the yellow card).

Why to monitor the growth of a child

An infant or young child who is exclusively breastfed until six months and then starts nutritious complementary foods with continued breastfeeding, has no illnesses and is cared for properly, grows steadily in weight. For example babies gain weight to three times their birth weight by the time they are one year old.

A child who fails to gain weight normally or loses some weight is unhealthy and becomes malnourished.

Therefore growth monitoring of a child, by measuring how much s/he grows in weight over a certain period of time, is a very important indicator of the health and nutritional status of a child. It allows health workers and parents to identify children in need of extra attention.

Growth monitoring conducted by health staff from health centres, supported by the National Nutrition Programme and with the cooperation of the parents and the community, is the first step on the road to health for our children.

Growth can be measured in different ways. In the past, another method measuring the height of a child has been used in some areas. But it is quite difficult to accurately measure the height of an infant. In fact the body weight growth is the simplest and most reliable method as variations in weight are easily detected.
The growth monitoring chart (yellow card)

This chart is a simple tool used to record regularly the weight of children under five years of age. Weighing children should be done every month, or at least at each visit. After checking the weight of children, it should be recorded on the chart. By doing so you record the weight of the child at different ages. This is the weight for age method for growth monitoring.

The weighing

There are two types of scale: the spring scale and the beam scale. Weighing is important and it should be done very carefully in order to be accurate. Ask the mother for assistance to weigh the child: it will make it less frightening for the child. Do not forget to remove the child’s clothes before weighing. When weighing show the parents the child’s weight. After the operation is complete report the weight on the growth chart.

How to assess the child’s age

There is one difficulty with the weight for age method: to assess the child’s age accurately. In the kingdom of Cambodia, only a few parents or caretakers know the precise children’s birth dates.

Health workers need this information to properly record the weight for age. They can ask the parents questions about events at the time of the child’s birth.
There are two types of events:

**Regular events**: like the Khmer New Year, Pchum Ben...etc.

**Exceptional events**: as the commune elections in February 2002.

In rural communities, it may be also useful to ask if it was the time of harvesting or planting rice. Start with the year: was it the year of the tiger, rat or horse? Then ask about the most probable month by asking questions related to events: was it the beginning or end of the year, or around Pchum Ben? Did something happen at that time? Was it the time of planting rice?

The calendar above is a useful tool, which can help to determine the age of a child. This calendar respects the Khmer tradition with the New Year in April. The first month of the year is April and the first three months of the civil year are placed at the right end of the calendar.

The left column shows the years. The top row shows the months. In this example, we are in January 2002 and we placed a 0 at this date. Then we wrote the number of months from top to bottom.
How to record the weight

There are different steps:

First step: write the months of the year at the bottom of the chart. Be careful to write the month the baby was born in the first square for each year.

Second step: weigh the child. Look at the scale in kilograms on the left side of the chart. Find the line corresponding to the child's weight. Follow the line on the right and mark a dot at the place where the weight line meets the child's age.


You can make the calendar even a more effective tool by making a column list of major events for each year; that will help you greatly for determining the child's age.
You will repeat this procedure every month. Join the dot you just recorded with the dot of the previous month. By joining all the dots you draw a weight line, which shows the trend of the child’s growth over the months.

How to read the growth chart

On the chart three lines are already drawn. If the dot is between the upper and middle line the child has a normal weight for his age. If it is below the middle line (in the orange area) the child has a low weight for age. If the dot is located below the lower line (in the red area), s/he has a very low weight for age.

But the most important is the direction of the weight line. If the weight line is below the lower line but the child gains weight well, it is all right. Some children are naturally smaller.

Explain to the parents what the direction of the weight line means:

1. If the line goes up, it is a good sign that the child is healthy and growing well. Praise the parents and encourage them to continue the good care.
2. If the line keeps horizontal, it is a danger sign, because the child does not gain weight. Is the child sick, is s/he still breast-fed, is s/he properly fed enough meals per day? Ask to the parents why their child is
If the line goes down, it is a dangerous situation because the child is losing weight. He is certainly sick and his health status needs to be assessed and if necessary to be referred.

Usefulness and advantages of the growth chart

The chart is very useful to the child’s parents/carers and health staff for:

- Showing the danger sign of malnutrition and/or disease.
- Reminding them of the monthly weighing date.
- Reminding them of the immunization and vitamin A schedules.
- Informing the parents/carers on appropriate child care and feeding practices.

The chart will be helpful for:

- Reassuring parents/carers that they give good care.
- Improving the child’s health by providing health education.
- Preventing malnutrition by taking early action.
- Detecting early infectious diseases and feeding problems.

Your child is 6 months old, you should continue to breastfeed

not gaining weight. Try to identify the problem and provide counselling to the parents.

Your child is 6 months old, you should continue to breastfeed

not gaining weight. Try to identify the problem and provide counselling to the parents.

not gaining weight. Try to identify the problem and provide counselling to the parents.
Improving immunization coverage and vitamin A supplementation.

What to do if the child does not gain weight

If a child does not gain weight, the following matters should be checked with the mother:

**Breastfeeding**

*Under 6 months of age children:* does she exclusively breastfeed, or has she started to provide complementary feeding? Recommend exclusive breastfeeding.

*Over 6 months old children:* does she continue to breastfeed? What kind of food does she give to the child, How many times a day? Make recommendations on proper feeding (see page 59).

**Diarrhoea**

Does the child have diarrhoea? For how long? Follow the national guidelines. Think about dehydration and provide ORS.

**Feeding**

Check what kind of food the mother gives to the child, how many times a day. Make recommendations on good feeding (see page 59) and on hygiene when preparing food (see page 71).

**Vitamin A**

Did the child receive a vitamin A supplement in the last 6 months? If not provide vitamin A capsule and record it on the card, and recommend a diet with green leafy and yellow vegetables, fruits, meat, liver, small fish, egg, etc.

**Immunization**

Is the child up to date for vaccinations? Check the immunization schedule.
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Recognizing, Assessing and Treating Malnutrition
By: Dr. Hong Rathmony, CDC Department, Ministry of Health

The Integrated Management of Childhood Illness (IMCI) is an effective strategy to reduce mortality and morbidity due to childhood illness. It is based on the assessment of the whole condition of the child. This article explains one of the method used in IMCI for the assessment of a child’s nutritional status. It also provides recommendations on how to care for malnourished children at Health Centre level.

In developing countries, every year more than ten million children die before they reach their fifth birthday. Many of these deaths are due to acute respiratory infections, diarrhoea, measles or malaria. As malnutrition increases the vulnerability of children to these illnesses, it is a major contributor to these deaths.

Recognizing this situation, WHO and UNICEF have developed the Integrated Management of Childhood Illness (IMCI). It provides simple and effective methods to prevent and manage the leading causes of childhood illness. As many sick children present signs and symptoms related to more than one disease, in IMCI the sick child is assessed for his/her whole health status (including the nutritional status) rather than focusing on one illness. IMCI is based on the assessment of signs that indicate severe disease. After assessing the signs, IMCI guides the health worker to make classifications rather than a diagnosis. From the classification the health worker knows what actions to take and treatment to choose, in order to manage the case.

In Cambodia, approximately 200,000 deaths of children less than 5 years old were reported in 2000. Moreover, 45% of children under five years old are underweight, and 13% are severely wasted. IMCI is already tested in two districts, and will be progressively extended to the whole country in the future.

Below is presented the method used in IMCI for the assessment of the nutritional status, which is only a part of the whole strategy.
Why do we check for malnutrition and anaemia

Very often, a child is brought to the Health Centre for an acute illness. The child might not have any obvious signs or specific complaints leading the health worker to think of malnutrition or anaemia. The child might be malnourished without the health worker or the child’s family noticing it. But malnutrition puts the child at a higher risk of infections or even death. Identifying malnourished children and treating them can prevent severe diseases.
Assessing and caring for a malnourished child with IMCI

The method follows three steps.

**Step 1: Look for signs and check weight for age**

1. Ask the mother: does the child have night blindness?

   The most common and earliest clinical sign that health workers can check for is night blindness. However, it might be difficult to find out this sign especially with very young children. You can ask the mother whether her child becomes inactive or stops playing in the evening, or whether her child is awkward when moving in the house during darkness.

   Remember: a child with vitamin A deficiency is very vulnerable to infections like measles.

2. Look for visible severe wasting

   When a child is severely wasted he is very thin, has no fat and is skin and bones. His condition is called marasmus. A severely wasted child should be referred to hospital for urgent treatment. But some children are naturally thin, still grow healthily and are not wasted.
To look for severe wasting, remove the child’s clothes. Observe the body muscles from head to legs and look for the following signs:

- Child’s face has an “old man or monkey” look, although sometimes it seems normal, with still fat on the cheeks.
- Shoulders and chest are smaller than abdomen.
- Upper arms are very thin only skin and bones.
- Outline of the child’s ribs is easily seen.
- Abdomen is usually large or distended.
- Hips may look small compared to the chest and abdomen.
- From the side, see if the fat of the buttocks is missing. On the child with very severe wasting, the skin forms many folds on buttocks and thighs. The child looks like s/he is wearing baggy pants.

3. Look for palmar pallor

Pallor is unusual paleness of the skin and is a sign of anaemia. Look at the skin of the child’s palm. Hold the child’s hand open by grasping it gently from the side. Do not stretch fingers backwards because it may wrongly cause pallor by blocking the blood supply.
5. Look and feel for oedema of both feet

Another form of severe malnutrition is kwashiorkor. A child with this type of protein-energy malnutrition develops oedema of both feet. Other common signs of kwashiorkor include:

- Thin, sparse, and pale hair that easily falls out.
- Scaly skin especially on the arms and legs.
- Puffy or moon face.

Oedema occurs when tissues become filled with too much fluid and look swollen.

To see if the child has oedema, with your thumb gently press for a few minutes on the top side of each foot. If a dent remains when you lift your thumb, the child has oedema of both feet.

5. Determine weight for age

Weight for age helps to determine if a child is underweight (see article page 25).
**Step 2: Classify the nutritional status**

IMCI encourages health workers to make a classification of the health status of a sick child rather than a diagnosis.

There are 3 classifications for a child’s nutritional status based on the signs you have observed or the weight for age. It classifies the nutritional status (as seen in the table below) from the most severe to the milder form of malnutrition or anaemia.

One classification for vitamin A deficiency is also added.

<table>
<thead>
<tr>
<th>Classification</th>
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<tbody>
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<td>Severe Malnutrition</td>
<td>When the child is too weak to sit up or stand up.</td>
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<tr>
<td>Moderate Malnutrition</td>
<td>When the child is weak but can sit up or stand up.</td>
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<tr>
<td>Mild Malnutrition</td>
<td>When the child is not too weak to sit up or stand up.</td>
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</table>
1. SIGNS
- Visible severe wasting or
- Severe palmar pallor or
- Oedema of both feet

2. CLASSIFY AS
- SEVERE MALNUTRITION OR SEVERE ANAEMIA
  ➢ Give vitamin A
  ➢ Treat a child to prevent low blood sugar
  ➢ Refer urgently to hospital

3. IDENTIFY ACTIONS TO TAKE, TREATMENT AND COUNSELLING
- Some palmar pallor or
- Very low weight for age
  ➢ Assess the child’s feeding and counsel the mother on feeding
    ➢ If feeding problem, follow-up in 5 days
  ➢ If some pallor:
    ➢ Give iron/folate
    ➢ Give mebendazole if child is 12 months of age or older and has not received any dose during the last 6 months
    ➢ If malaria risk, perform dipstick test and treat accordingly
    ➢ Follow up in 14 days
  ➢ If very low weight for age
    ➢ Give vitamin A
    ➢ follow-up in 30 days
  ➢ Advice mother when to return immediately

- Not very low weight for age AND No other signs of malnutrition
  ➢ If child is less than 2 years old, assess the child’s feeding and counsel the mother on feeding
    ➢ If feeding problem, follow-up in 5 days
  ➢ Advice mother when to return immediately

- Night blindness
  ➢ Give vitamin A
  ➢ Follow-up in 14 days

เห็นข้อดีในเวิร์ที่มีลักษณะต่างๆ ดังต่อไปนี้ ที่จะทำให้ลูกพัฒนาดีขึ้น
Then check the child’s immunization, vitamin A and mebendazole status

<table>
<thead>
<tr>
<th>AGE</th>
<th>VACCINE</th>
<th>IMUNIZATION CALENDAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth</td>
<td>BCG</td>
<td>OPV-0</td>
</tr>
<tr>
<td>6 weeks</td>
<td>DPT-1</td>
<td>OPV-1</td>
</tr>
<tr>
<td>10 weeks</td>
<td>DPT-2</td>
<td>OPV-2</td>
</tr>
<tr>
<td>14 weeks</td>
<td>DPT-3</td>
<td>OPV-3</td>
</tr>
<tr>
<td>9 months</td>
<td>Measles</td>
<td></td>
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<tr>
<th>AGE</th>
<th>VITAMIN A SUPPLEMENTATION SCHEDULE</th>
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<tbody>
<tr>
<td>6 months</td>
<td>Give the first dose at 6 months of age or above.</td>
</tr>
<tr>
<td>6 months to 5 years</td>
<td>Give vitamin A to children (6 months up to 5 years) that have not received it in the previous months.</td>
</tr>
<tr>
<td>6 months up to 8 years</td>
<td>If measles is in the surrounding community, give vitamin A.</td>
</tr>
</tbody>
</table>
From the classification you can identify in the 3rd column the proper actions to take, treatment and advice to give to the mother.

**Step 3: Identify actions to take, treatment and counselling to give**

**Severe malnutrition or severe anaemia**

Children in this classification are at risk of death from diseases such as pneumonia, diarrhoea, and measles. Therefore, they need to be urgently referred to hospital. Before referral give the child a dose of vitamin A.

**Anaemia or very low weight**

In this classification, children are at high risk of severe diseases. Their feeding has to be assessed in order to identify feeding problems and provide appropriate counselling to the mother (see article page 59).
Some palmar pallor may be a sign of anaemia. Anaemia may be caused by malaria, hookworm or whipworm infection.

In case of malaria consult the National Malaria Guidelines.

Vitamin A is given to children with measles or malnutrition. It reinforces their defense against infections, especially measles.

Mebendazole treats hookworm and whipworm infections. Those infections contribute to anaemia because of iron loss through intestinal bleeding.

**No anaemia and not very low weight**

Assess the child’s feeding if s/he is less than two years old. Children less than 2 years old have a higher risk of feeding problems and malnutrition.

**Vitamin A deficiency**

Give vitamin A capsule and counsel the mother on properly feeding the child with foods containing vitamin A (green leafy vegetables).

**Other assessments**

After assessing the child’s nutritional status, the child’s immunization, vitamin A and mebendazole supplementation should also be checked.
ការបង្កើតប្រភេទពត៌មានរយៈពេលសុខភាពពីដៃរបស់កូនបារមុខ និងធាតុរបស់គ្មានទុកជាក់ពឹងល្អជាងចនឹងការរៀបចំដ៏ស្រប់។ ដូច្នេះប្រភេទពត៌មានមួយនេះគឺជាទូទៅមានប្រយោជន៍នូវការសំខាន់ជាច្រើន។

Warmth and closeness with the mother is important
Breastfeeding is of vital importance for the health of our children. Although most Cambodian women breastfeed their babies, some practices should be improved. Below important advices and information for breastfeeding mothers is given.

A healthy start in life is the most precious gift that parents can give to a newborn child. A baby needs the physical closeness and warmth of his/her mother as much as a good feeding.

Breastfeeding (BF) is the best and safest way to feed infants. Breast milk meets all the nutritional requirements for the first six months of life. It provides the only perfect food for babies, protects them against infections and lays a foundation for a healthy growth and development, emotionally, mentally and physically.

Situation of breastfeeding in Cambodia

In Cambodia, mothers have always traditionally breastfed their babies. The year 2000 Cambodia Demographic Health Survey showed that 96% of the mothers breastfeed their children. The average duration of breastfeeding for children born in the last three years before the survey is 24 months. This is a positive finding as the Ministry of Health recommends the duration of 24 months for breastfeeding.

But other results were less positive and show that BF practices can be improved in Cambodia. The recommended practice is to start breastfeeding within one hour of birth, feed colostrum, and to breastfeed exclusively up to 6 months of age of the baby.

However:

- Only 11% of infants were put to breast within an hour after delivery and only 24% within the first day.
- Only 18% of the infants less than 2 months old are exclusively breastfed and it falls to 5% by the age of 4 to 5 months.

Why do we need a National Infant and Young Child Feeding Programme

The infant mortality rate, which is the number of children dying during their first year of life, is still high at 95 deaths per 1000 live births. Malnutrition starts early in life and is common among children under the age of 1 year. This is related very much to poor breastfeeding practices.
Most mothers deliver at home. They receive very little or no counselling on exclusive breastfeeding for the first 6 months and the importance of giving the colostrum to their babies immediately at birth. It is confirmed by the results mentioned above.

Many health staff have not yet been trained on BF counseling skills. Mothers often can not get advice when they encounter BF problems. Therefore many Cambodian children miss the benefits of exclusive BF. The poor infant feeding practices contributes to the high infant morbidity and mortality rates in Cambodia.

To improve this situation, training of Health Workers to improve the breastfeeding practices of Cambodian mothers is seen as a priority by the Ministry of Health and other supportive agencies as UNICEF and WHO.

Why breastfeeding is very important

The mother’s milk is ideal for the baby

Breast-milk has a high nutritional value and it contains antibodies, which help to protect the baby against many common childhood illnesses.
It is sterile, always at the right temperature, inexpensive and nearly every mother has more than enough of this high quality food for her baby.

Breastfeeding is also a method of birth-spacing. It can delay the next pregnancy. If the baby starts suckling within an hour after delivery, suckle often and is exclusively breastfed, the chances for the mother to be pregnant again are very small.

**Why breast milk is the best food**

Breast milk is always in perfect condition for a baby, even if the woman is ill, pregnant, menstruating or undernourished.

**Breast milk has all the nutrients that a baby needs for the first 6 months.** It contains:

- Proteins and fats in the right quantities.
- Lactose (a kind of sugar), more than any other milk.
- Vitamins, no supplements are necessary.
Iron, breastfeed babies do not develop iron deficiency anaemia.

Water even in a hot, dry climate.

How breast milk protects babies against infection

Breast milk is clean and free of bacteria and never makes a baby ill. It contains:

- White blood cells, which kill bacteria
- Antibodies, protecting a baby against many infections until s/he can make their own. If a mother has an infection, antibodies against that infection quickly appear in her milk.

Breastfed babies have much less diarrhoea and fewer respiratory and middle ear infections than artificially fed babies do. BF should not be stopped if a baby has diarrhoea. Breastmilk continues to prevent infection and helps for a quicker recovery even during the second and third years of life.

How the milk comes

Colostrum

For the first few days after delivery the breasts feel soft and empty and secrete only small amounts of a yellowish milk, called the colostrum.
Important message to all Cambodian mothers

Start breastfeeding within the first hour of birth. Give colostrum to your baby. It is exactly what s/he needs for the first few days. It is a life-saving drink!

It is his/her first “immunization” against many diseases.

The colostrum contains more antibodies and white blood cells than the later milk.

**Mature breast milk**

After a few days, the breasts start to feel full and sometimes hard. They begin to produce mature milk with all the nutrients that the baby needs. Sometimes it comes in 2 days or more. It comes more quickly if the baby is allowed to suckle frequently from the time of delivery. This is called **unrestricted feeding.**

**Foremilk and hind milk**

The milk is not the same throughout a feeding. First the milk looks grey and watery and contains proteins, vitamins and lactose, but not much fat. This is the foremilk. Then at the end of a feed,
the milk becomes whiter; it is called the hind milk. It contains more fat, which is important for the baby’s energy.

**Continuing breastfeeding**

After a few days the breasts feel less full. They become soft again although they continue to produce plenty of milk. Sometimes a mother thinks that her milk has dried up when her breasts become softer. If the baby continues to suckle frequently whenever he/she is hungry, the mother will continue to produce plenty of milk.

Breast milk flow depends partly on the mother’s thoughts, feeling and sensations. It is important to keep mothers and babies together day and night, and to help mothers to feel good about breastfeeding.

The amount of milk that the breasts produce depends partly on how much the baby suckles. **More suckling makes more milk.**

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**Prelacteal Feeding is Dangerous!**

No need to feed water or glucose water to the baby at birth. A baby is born with a store of water, which keeps him well hydrated until the breast milk comes in. Prelacteal feeding may cause breastfeeding failure. It also presents risks for both the baby and the mother:

**The baby**
- It replaces the colostrum
- High risk of diarrhoea and other infections

**The mother**
- Difficulties to start breastfeeding
- Engorgement and mastitis because the baby does not remove the milk
Common reactions during breastfeeding

“*My breasts are too full and they hurt*”

When the first milk comes in, the breasts may feel hot, heavy and hard, as though they were full of stones. In most cases, the breasts are simply full. The milk continues to flow and the baby can feed normally. The mother should feed the baby frequently to remove the milk. If not enough milk is removed, the breast may sometimes become engorged. See below.

“I do not have enough milk”

This is the most common reason given by mothers who want to stop breastfeeding too early. Many health workers accept what a mother says and advise her to give supplements. But often the mother has plenty of breast milk. She only lacks the confidence that her milk is enough. Almost all mothers can produce enough milk if they want to, if the baby suckles in a good position and is breastfed often enough. Breastfeeding should be continued for at least 2 years and even more.

#### Signs of a good suckling position

- Baby’s body turned towards his/her mother and is close to her
- The chin touches to the breast
- The mouth is wide open
- Baby takes slow and deep sucks
- Mother can see or hear baby swallowing
- Baby is relaxed and satisfied at the end of the feed
- Mother does not feel any pain
Breastfeeding problems

Engorgement

Sometimes, breasts become swollen and hard, and milk does not flow well; too much milk and fluid tissue are collecting in the breasts. This is called engorgement.

This is generally due to a delay before starting breastfeeding. Unrestricted breastfeeding and a good position when the baby is suckling usually solve the problem.

To treat engorgement the health worker should:

- Show the mother how to express milk.
- Explain her that warming the breasts can help the milk to flow.

Blocked duct

Sometimes a swelling may form in a part of one breast. It shows that the milk is not getting out of that part of the breast. A health worker should recommend the mother:

- To feed the baby more often on the breast with the swelling.
- To gently massage the swelling when the baby is suckling.
If it does not improve, the mother may need to express her milk.

**Mastitis**

Mastitis is the infection of a breast. It may develop after engorgement or a blocked duct last for a few days. The breast becomes tender and the mother may have a fever.

The most important is to remove the milk. The baby should therefore continue breast-feeding. If this is not possible the mother should express her milk. If the condition lasts it may be necessary to give an antibiotic.

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**Sore nipples**

When a baby suckles only the nipple and in a poor position, it can hurt the mother’s nipples and she can feel pain. There can be a fissure on the top or around the nipple.

- Check the baby’s position when suckling and correct it.
- Show the mother to leave a drop of hind milk on the nipple. It will help to heal.

**Flat nipples**

Some women have flat nipples. This is not a problem as long as it can stretch and form a teat for the baby to suckle.

If the nipples do not stretch out easily at first, the mother should be explained that the child should take more of the breast in the mouth. She should also be persistent, as most of the time the nipples improve after a few days.
ការបោះឆ្នោតយោង ប្រឈមបោះឆ្នោតរីងតាំងទៅកំពូល កន្លាក់ការធ្វើប្រកួតប្រជេង ចំពង់ដែនប្រកួតប្រជេង និងប្រកួតប្រជេងប្រកួតប្រជេង ដ៏ស្របច្ចុប្បាល ក្នុងក្រុងកែវ្រោះកំពូល។ ការបោះឆ្នោតយោង ការបោះឆ្នោតរីងតាំងទៅកំពូល កន្លាក់ការធ្វើប្រកួតប្រជេង ចំពង់ដែនប្រកួតប្រជេង និងប្រកួតប្រជេងប្រកួតប្រជេង ដ៏ស្របច្ចុប្បាល ក្នុងក្រុងកែវ្រោះកំពូល។

នេះមានសកម្មភាពទូទៅ នឹងបោះឆ្នោតយោង ការបោះឆ្នោតរីងតាំងទៅកំពូល កន្លាក់ការធ្វើប្រកួតប្រជេង ចំពង់ដែនប្រកួតប្រជេង និងប្រកួតប្រជេងប្រកួតប្រជេង ដ៏ស្របច្ចុប្បាល ក្នុងក្រុងកែវ្រោះកំពូល។

Unicef
Mother to child transmission is by far the major source of HIV infection in children below the age of 10 years. The virus may be transmitted during pregnancy, childbirth or breastfeeding. The risk of infection is now thought to be 5 to 10% during pregnancy; 10 to 20% during labor and delivery; and 10 to 20% during breastfeeding. It means that around two third of newborn babies will not be infected by HIV positive mothers.

The risk for a baby to get infected by his mother is more of an issue in developing countries than in developed countries. Mostly because in developing countries, breastfeeding is more common and done for a longer period. In Cambodia, according to the year 2000 Cambodia Demographic and Health Survey, 96% of the mothers breastfeed their children. In the 1999 National Health Statistics Report, 2.6% of women receiving Ante-Natal Care were found HIV positive.

A critical question

Looking at the above figures, a critical question raises: what should a HIV positive mother do for feeding her baby? Should she breastfeed or not? What is the best choice for feeding her child?

We know all the advantages of breastfeeding (see article page 43). If the mother does not breastfeed at all, breastfeeds partially or only for a short period, the baby does not get all the benefits from the breastmilk.

We should now look at the possible alternatives to exclusive breastfeeding in Cambodia. When reviewing these alternatives we will keep in mind these questions: are they reasonable, manageable, affordable and safe for Cambodian women and their babies? Where is the highest risk: HIV transmission through exclusive breastfeeding or other infectious diseases through different feeding methods?

Alternatives to exclusive breastfeeding

Infant formula: is an expensive solution. Moreover, it is not available everywhere. It might also be a dangerous solution, if the mother lacks knowledge of the correct use of formula milk. If it is prepared without proper and very strict
hygiene, it can be a cause of severe infection which can lead to malnutrition and even death. Therefore, this solution is not recommended to the vast majority of Cambodian mothers, who cannot afford and lack often the means and the basic knowledge on the strict hygiene to safely prepare formula milk.

**Expressed breastmilk:** the mother has to express the milk, to boil it to kill the virus and then to cool it down immediately in cold water or a refrigerator. It is a solution difficult to manage for many women.

**Wet nursing:** another woman who can breastfeed replaces the mother. This woman should not be HIV positive herself and must practice safe sex to be sure she remains HIV negative for the time she breastfeeds. It might be an expensive solution if the wet nurse requests payment for her service.

**Stopping breastfeeding early:** it may reduce the risk of HIV transmission by reducing the duration of breastfeeding. This solution still exposes the child to malnutrition and to other infectious diseases through early replacement feeding. The child and the mother will lose the advantages of breastfeeding, e.g. the protection against infection, the best and most nutritious food for the infants, and the birth spacing effect for the mother.
For the majority of Cambodian women, breastfeeding remains the best solution. For them breastfeeding even with the risk of HIV transmission still presents many advantages that exceed those of other feeding methods. With most other feeding methods, there is a high risk of infectious diseases, especially the risk of diarrhoeal diseases. Most Cambodian households cannot afford formula milk, lack knowledge about hygiene or have no access to safe water.

Because of these considerations, the Ministry of Health recommends exclusive breastfeeding for all women whether HIV positive or not.

**Counselling for HIV positive mothers**

But the final decision should be taken by the mothers.

Health workers should introduce all the possible choices as presented above. They should provide all the information to the mothers to allow them to take the best solution in regard of their situation.

They can help the mothers to assess their situation: can they afford formula milk, do they have access to safe water, can they prepare replacement foods in strict hygienic conditions?

The decision should not be imposed on the mothers. Counselling will give the capacity to mothers to take the right decision considering their personal situation.
ក្មែរ

ការសិក្សាឆ្នេះព្រ័ត្នដំបូង ដែលអាចធ្វើបានដ៏ល្អបំផុត គឺអាចធ្វើបានដ៏ល្អបំផុត
ដោយមានការសិក្សាឆ្នេះព្រ័ត្នដំបូង ដ៏ល្អ។
Malnutrition among children is often not due to the lack of food at home. Their nutritional status is affected by the way parents care for their children. Inadequate child care and feeding practices are common causes of malnutrition. What foods and how much foods a baby is given affects a child’s growth and health for the rest of his/her life.

Therefore, it is important for health workers to know what advice to give to mothers about their children’s diet, especially breastfeeding and introduction of complementary foods.

Complementary foods

Complementary feeding is the introduction of foods other than breast milk into a child’s diet. Slowly, the amount of these foods is gradually increased.

If mothers start to introduce complementary foods before the age of 6 months, the baby can be exposed to infection. Moreover the quantity of breastmilk the mother has can decrease, because the baby suckles less.

If complementary feeding is started too late, the baby is at risk of becoming malnourished because s/he is not receiving all the nutrients that s/he needs. The child may not accept the taste of other foods when introduced too late and will only take breastmilk. It is important to advise mothers about the proper feeding practices for different ages.

1. Newborn babies

Start breastfeeding during the first hour of delivery and feed colostrum.

2. Children 0 - 6 Months

Exclusive breastfeeding is highly recommended for first six months of the baby’s life (see article page 45).
3. Children 6 – 11 Months
From 6 months

At six months of age, breastmilk alone does not provide enough nutrients for a baby’s growth and development. Babies are ready to digest and test other foods; they usually show it by reaching out for or grabbing foods. Breastmilk still remains the most important part of the baby’s diet. Breastmilk should be given first, followed by other foods.

**Good feeding practices**

- Give the baby one food at a time so that the baby can get used to the taste and texture. Wait about four days between each new food to make sure that the baby does not get sick.
- Begin offering mashed and soft foods 3 times each day after breastfeeding. Give the baby 2 – 4 spoonfuls at each meal.
- Good foods for this age are mashed rice soup, mashed banana, and mashed egg yolk. As soon as the child is used to rice porridge, add mashed foods such as banana, egg yolk and dark green or orange vegetables to the rice porridge in order to enrich it.

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From around 9 months

From this age, babies should receive a mix of foods, including rice, meat, fish, eggs, oil, vegetables and fruits. They need to eat foods that have a lot of energy and nutrients. The best diet for babies is a mixture of foods from the 3 food groups, for example rice soup mixed with vegetables, oil and some fish, egg or soft meat.

A baby still receives important nutrients from breastmilk at this age. Babies should continue to breastfeed first before receiving other foods.
Once or twice a day, the baby can eat a meal or snack without being breastfed.

**Good feeding practices**

- Foods should still be finely chopped and cooked until soft.
- Feed the baby 5 times a day, for example 3 meals and two snacks. Babies need to be fed in smaller amount and more frequently than adults, because they have smaller stomachs.
- Babies can have three of their meals at the same time as adults, but mothers should remember to give a snack in between meals at least two times a day.
- A baby should be eating ½ - 1 cup of food per day.

**4. Children 12 – 23 Months**

At this age, children are ready to start eating the same foods as other family members. Mothers can give their babies vegetables and meat from the family soup and stir fried dishes. If a baby is fed with the other family members, the mother needs to make sure that the others do not eat all of the vegetables and meat, but make sure to save some for the baby. Foods still need to be cut small and should not be too
hard or spicy for the baby to digest. Mothers should continue to **breastfeed** at least until the baby is 2 years old.

**Good feeding practices**
- Feed the child at the same time as the rest of the family for three meals a day: breakfast, lunch and dinner.
- Also give the baby two snacks a day, mid-morning and mid-afternoon.
- The baby should receive foods first and then breastmilk afterwards.
- Every meal should include a variety of foods.

5. **Over 24 months**
At this time, most children stop breastfeeding. They are now ready to receive all of the nutrients that they need from all kind foods.

**Good feeding practices**
- Children should eat a meal at least 3 times a day, and if available, 2 snacks.
- Children should eat energy and nutrient enriched foods. They particularly need to eat foods high in vitamin A, iron and vitamin C. They also need oil or fat to help absorb the vitamins and for energy.
- Use iodized salt for preparation of children’s food.

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Iodized salt **HKI**
“I am pregnant, I should eat less.”

“No! you should eat more and nutritious foods.”
Most of the people understand that malnutrition is related to poverty.

Poverty is an important factor of malnutrition. But it is far from being the only one. It would even be an error to consider it as the most important. Ignorance (literacy rate and educational level of women are still low in Cambodia) on proper feeding, old beliefs and mistaken traditions or taboos contribute greatly to the high rates of malnutrition in Cambodia. For these reasons, available food that could contribute to feed people is often not or inappropriately used.

**Three groups are particularly vulnerable:**
- Pregnant and lactating women
- Newborn babies
- Children (particularly when introducing complementary foods)

Below are listed some of the most common food taboos and wrong feeding practices due to ignorance that we have observed in our Integrated Food Security Programme.

**Pregnant and lactating women**

Pregnant women are often put on a diet, although their condition requires that they eat more nutritious foods. Some nutritious foods such as coconut milk, sweet potato, banana flower, are not considered good for them.

After delivery, drinking much wine is encouraged. Salt, pepper (which is banned when women are pregnant) and ginger are advised. Fresh vegetables and fish are frequently proscribed.

For lactating women, pig’s head, fresh vegetables, bamboo shoot and wild animal meat are often prohibited. But lactating women need even more nutritious food than during pregnancy, because of the milk they produce.

**Newborn babies**

The colostrum is very important for the baby’s health. But by traditional belief, many mothers think this is “bad milk” and do not feed their babies with the colostrum. Instead they give unsafe water and then the cycle of diarrhoea and malnutrition may start from the early hours of the baby’s life.

**This article aims at raising awareness on how some social and cultural factors, such as the lack of knowledge on nutrition, food taboos and traditional beliefs, can lead to malnutrition. It also sets important priorities to reduce malnutrition.**
Children under 5 years of age

Wrong feeding practices

- Complementary feeding is provided either too early or too late.
- Meat, vegetable and fruit are very often not added to the “bобор sor” (the traditional

Postnatal roasting (ang pleung)

It is still a very popular Khmer tradition of healing after a trauma, like birth. Most
mothers still practice it. The mother with the baby lies on a bed for a few days wrapped
in warm clothes besides a fire or charcoal. The baby is fed with water or sugared water
and does not get the colostrum.
Khmer rice soup) but only salt and sugar. At best, occasionally some dry fish may be added. Therefore the “bobot sor” has little nutritional value, and lacks essential nutrients for the children’s health.

- Fat, a nutrient that is required to meet the energy needs of children, is generally absent from the daily diet. Fresh flesh from coconut, available in all villages, is never used. This is a perfect source of energetic fat and at very low cost, compared to oil or pig’s fat.

- Too early, children have to eat the same food prepared for adults, which is not appropriate for them. Children, because they are growing fast, have higher requirements in nutrients than adults.

- Young children joining the “family table”, eat only as many meals as adults, usually twice a day. Young children need to be fed more often than adults. 5 to 6 feedings per day is highly recommended below three years old.

- Very few families use iodized salt.

- We have also observed a lack of vegetables in the children’s diet because too few Khmer families have a garden. Many parents do not understand the importance of providing vegetables in the family diet and particularly for children.

- In many families, priority is given to the productive members: the father and other...
male adults. Young children may be considered as a financial burden, and are the last priority in the family’s feeding.

**Food taboos**

Some food taboos for children are very persistent and harmful. Still, some people believe that meat and vegetable are dangerous and will cause parasite infections and that fruit will cause diarrhoea. It is very unfortunate as banana, papaya and mango are widely available everywhere in the countryside.

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These beliefs, often supported by grandparents at home, are also an obstacle for changes to healthier feeding.

**Health education**

Health education for parents is important:

- To make them aware of the foods that their children need for their development.
- To have right feeding practices.

Behaviours take time to change. Regarding nutrition, the situation in Cambodia is further aggravated by the fact that so many children suffer from malnutrition. The mother may consider her child to be as healthy as all the others, when in fact “the others” are also malnourished.

Health Education should start from the goods available in the mothers’ environment. It will not help to tell them about expensive food such as beef and chicken if they cannot afford. But fish,
frog, rice field crab, termite, “chongret” (cricket) and eggs are available in the communities all over Cambodia.

**Priorities for diminishing malnutrition**

Based on our experience in the IFSP programme and considering the means and the training of health workers at health centre level, we strongly recommend focusing on the following priorities at village level:

- Regular **vitamin A** supplementation, with proper registration on the yellow card to avoid overdose.
- Proper **iron therapy** for children less than five years old, school children and pregnant women.
- Twice a year **deworming of children** less than 2 years old, during outreach activities and together with vitamin A supplementation.
- **Iodine** supplementation/use of iodized salt.
- **Safe drinking water**: boil unsafe water.
- Use of a **Latrine** (90% don’t have): stools litter the surroundings of the house where children play. They get easily infected with parasites. As well, faeces might pollute the food, water, and wells. This is a main cause of the cycle: diarrhoea → malnutrition → diarrhoea.
- **Proper garbage disposal**.
- **Systematic use of ORS** in case of diarrhoea.
- **Hygiene**: clean hands before preparing food, before eating and after defecation. Wear shoes when passing stool, etc...

Ideally, it would be preferable to start those activities before beginning the monitoring of children’s growth.

The struggle against malnutrition is just at the beginning in Cambodia. There is still a long way to go and a lot of efforts have to be made. But it is a necessity for the development of the Kingdom of Cambodia and a brighter future for the younger generations. There is no developed country with a largely malnourished population.
លេខឈ្មោះក្រុមអ្នកប្រការ ១ សកលវិទ្យាល័យសាធារណៈកម្ពុជា សារព័ត៌មាន ២០០៥

section 1

ប្រកួតប្រជែងប្រការក្នុងក្រុមអ្នកប្រការ២ ក្នុងសមាសធាតុនគ្គីថ្មីននេះ រាជធានីប្រកួតប្រជែងប្រការ ២ ក្នុមអ្នកប្រការ សម្រាប់ប្រកួតប្រជែង២ ក្នុមអ្នកប្រការ សព្ទព្រ័យសាធារណៈកម្ពុជា សារព័ត៌មាន ២០០៥។

ព្រ័យសាធារណៈកម្ពុជា សារព័ត៌មាន ២០០៥ ប្រកួតប្រជែងប្រការក្នុមអ្នកប្រការ ២ ក្នុមអ្នកប្រការ សព្ទព្រ័យសាធារណៈកម្ពុជា សារព័ត៌មាន ២០០៥។

NCHP
Basic Food Safety

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Food safety is a key strategy to prevent diarrhoea and malnutrition in children. Ten basic principles are essential for preparing and storing food safely.

Mortality caused by acute infant diarrhoea has dramatically decreased around the world. From around 5 million infant deaths in the early 1980s, it fell to about 1.8 million in the late 1990s.

Unfortunately morbidity has not followed the same trend. Yet, three important prevention strategies have been promoted and have had positive results, i.e. exclusive breastfeeding up to the age of 6 months, Expanded Programme of Immunization (EPI) and sanitation and safe water. Therefore, why has the morbidity of diarrhoeal diseases not decreased?

Most likely, the diarrhoeal morbidity will reduce, once food safety is added as a fourth prevention strategy. It is important to know that up to 70% of all episodes of diarrhoea in children are considered the result of the consumption of contaminated food and water.

Infant diarrhoea usually starts with introduction of complementary food. If the food given to the child is contaminated with pathogenic (disease causing) agents such as salmonella or Shigellae bacteria, then diarrhoea is the most likely result. Food contamination is an important contributing factor to the vicious cycle of diarrhoea and malnutrition.

In developing countries like Cambodia, food contamination is most often the result of a few wrong practices in preparing and storing the food. WHO has prepared a list of ten basic principles, which can help to prepare safe food at home if they are properly followed.

This list will also be useful for giving health education to mothers who bring their children to the Health Centre because of diarrhoea.

1. Cook food thoroughly

Many raw foods, notably poultry, raw milk and vegetables are very often contaminated with disease-causing organisms. Thorough cooking will kill these organisms. For this purpose, all parts of the food must become steaming hot, which means they must reach a minimum temperature of 70 °C.
2. Avoid storing cooked food

Prepare food for infants and young children freshly, and give it to them immediately after preparation when it is cool enough to eat. Foods prepared for infants and young children should preferably not be stored at all. If this is impossible, food could be stored only for the next meal, but kept cool (at temperatures below 10 °C) or hot (at temperatures near or above 60 °C). Before consuming stored food, it should be reheated thoroughly. Again, this means that all part of the food mush reach at least 70 °C.

3. Avoid contact between raw food and cooked food

Cooked food can become contaminated through even the slightest contact with raw food. This cross-contamination can be direct, as for example when raw food comes into contact with cooked food. It can also be indirect and subtle: for example, through hands, flies, utensils or unclean surfaces. Thus, hands should be washed after handling high-risk foods, e.g. poultry. Similarly, utensils used for raw foods should be carefully washed before they are used again for cooked food. The addition of any new ingredient
to cooked food may again introduce pathogenic organisms. In this case, food needs to be thoroughly cooked again.

4. Wash fruits and vegetables
Fruits and vegetables, particularly if they are given to infants in raw form, must be washed carefully with safe water. If possible, vegetables and fruits should be peeled. In situations when these foods are likely to be heavily contaminated, for example when untreated wastewater is used for irrigation or untreated night soil is used for soil fertilization, fruits and vegetables which can not be peeled should be thoroughly cooked before they are given to infants.

5. Use safe water
Safe water is just as important in preparing food for infants and young children as it is for drinking. Water used in preparing food should be boiled, unless the food to which the water is added has subsequently to be cooked (e.g. rice, potatoes). Remember that ice made with unsafe water will also be unsafe.
7. Avoid feeding infants with a bottle

Use a cup to give drinks and liquid goods to children. It is usually difficult to get bottles and teats completely clean. Cups, spoons, dishes and utensils used for preparing and feeding infants should be washed right after use. This will facilitate their thorough cleaning. If bottles and teats must be used, they should be thoroughly washed and boiled after every use.

8. Protect food from insects, rodents and other animals

Animals frequently carry pathogenic organisms and are potential sources of contamination of food.

9. Store non-perishable foods in a safe place

Keep pesticides, disinfecting agents or other toxic chemicals in labeled containers and separate from foodstuffs. To protect against rodents and insects, non-perishable foodstuffs should be stored in closed containers. Containers, which have previously held toxic chemicals should not be used for storing foodstuffs.

10. Keep all food preparation premises meticulously clean

Surfaces used for food preparation must be kept absolutely clean in order to avoid food contamination. Scraps of food and crumbs are potential reservoirs of germs and can attract insects and animals. Garbage should be kept in a safe covered place and be disposed of quickly.
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៦ ឆ្នាំ ១៩ ខែ សីហា ឆ្នាំ ២០០៧

រ៉ុក្កាម្ម មុន៦
Ms. Hem Neang has worked for seven years in a community-based project for urban poor families with Servants, a Christian organisation from New Zealand. She is the nutrition programme manager. We invited her to share her experience in working with urban poor families.

**In your communities, what are the main causes of malnutrition?**

There are different causes but for me there are three main reasons: children do not receive enough food, mothers do not give the right foods and children are not well cared for, e.g. poor hygiene leading to frequent sicknesses. Another important reason is that many children have worms. In our areas there are also many cases of children with TB and we have also children with HIV/AIDS.

For the more severe cases there is always a link with disease such as diarrhoea, measles, TB and HIV/AIDS. But for most of the cases of malnutrition in general, the problem is inappropriate feeding, especially inadequate breastfeeding and wrong complementary feeding during the first 2 years of life.

**What do you do for the malnourished children in your programme?**

For the most severe cases we refer them to the hospital. For the others, we provide some food supplements to the parents to rehabilitate the child and we give treatment for the infectious diseases.

But the most important thing we do is to give counselling on appropriate feeding to the parents. We provide lessons where parents can learn how to properly feed and care for the health of their children. Sanitation and hygiene are included. We also do regular home visiting to continue the counselling and see how the child improves.

**Do you think poor families can feed their children well?**

Yes I am sure. In our communities of urban poor families we have healthy and well-nourished children. There are cheap and nutritious foods available.
So why do we have both well-nourished and malnourished children in poor families? The difference lies in the kind of food given, the feeding practices and the quality of childcare. That is why our programme targets the parents who lack the knowledge and skills to care and correctly feed their children.

There are also rich families who lack the knowledge and have malnourished children but it is not so frequent.

In our project we show mothers how to cook from locally available, nutritious and low cost foods. We show them how to prepare Samlor Samlork and Samlor Machu. The soup is mixed with ingredients from the three food groups (see page 59).

What do you do when a child enters the programme?

We take their history and inquire how often the parents feed the child, what kind of food they give. We look for other causes. We try to find out if the child may have TB and we also check the child immunization and if he gets vitamin A supplements.

What is the key for success in solving malnutrition?

The counselling to the parents is the most important, so they can learn and change. The treatment of infectious diseases that go together with malnutrition is also important. If the disease is detected early, treated effectively and parents
properly feed children during and after illness, the children recover and their nutritional status improves quickly. Look at the pictures and growth chart of some of our children (see below). In our programme, I would say that we can improve the situation of around 3/4 of our children.

Is there something you consider very important you want to tell to the readers?

Yes, how important care is for the children. We always say to the parents: you love your children and you should try as much as you can to feed them well, paying particular attention to breastfeeding and complementary feeding and give them time and care.

I have in mind two severe cases related to the problem of care.

Srei Ya. When she arrived the first time she was 4 months old and weighed only 2.4 kilos for 50 cms (see photo). She had a high RR 60 mn. She had diarrhoea with mucus. Taking the
history, I learnt that Srei Ya was bottlefed and that was not her mother caring for her but her grandmother. Her mother left the house because the parents of her father did not accept them to get married. Her grandmother was busy selling vegetables and Srei Ya was cared for by neighbours and other family members.

We took Srei Ya in our programme and gave treatment for acute respiratory infection (ARI). We also gave recommendations to the grandmother on how to feed and care for Srei Ya. The grandmother decided to give much more time to Srei Ya. Then, her condition quickly improved thanks to the care, attention and improved feeding provided by the grandmother (see photo and growth chart).
Thaung. The father is a moto doup driver and the mother is a house wife. The first time I saw her, she was 29 months old, weighed 6.7 kgs and was 78.5 cm tall. She was very thin, skin and bones and had diarrhoea.

We discovered that the mother did not care well for Thaung. The child was often left alone because her mother spent a lot of time gambling. It has taken us time and patience to make the mother understand well how to feed and care for her child. Now the situation of Thaung has also improved greatly.

For children, nothing can replace the good, attentive care and love of their family.
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Breastfeeding

Breast milk is the best, most nutritious and safest food for your baby. Breast milk is a life-saving meal because it protects your baby against many diseases.

- Start breastfeeding within an hour after birth. Give the colostrum (the first yellow milk) to your child. It is the best protection against infection for your baby.
- Breastfeed exclusively during the first 6 months. The breast milk is the most nutritious food for the baby who does not need any other food during this time.
- After 6 months continue to breastfeed even as you start to give other foods. It is good to breastfeed for at least 2 years. Breast milk is still a nutritious food that helps to protect the child against disease.
- Breastfeeding prevents a new pregnancy from coming too fast.
- Do not stop breastfeeding if the child is sick. If you continue, you help your baby to recover quickly.

Complementary feeding

After 6 months, keep breastfeeding for at least 2 years and give other foods to your baby. This is a very important period for the baby’s health. Many children can get sick at this time if some important feeding practices are not followed.

- Give nutritious food from the 3 food groups. The rice soup (bobor) should include other foods: mashed fruits, vegetables, meat or fish.
• Add a spoon of fat in the bobor: oil, pig fat or coconut flesh. It gives energy to the baby.

• Feed your baby 5-6 times a day in small quantities. Your baby’s stomach is small.

• Have very good hygiene when preparing the food: wash your hands before, clean the utensils, cook thoroughly the ingredients and use boiled water if you do not have safe water.

• Prepare the food especially for the baby just before the meal and in a very clean environment.

Servants

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Health Messenger is a distance learning magazine directed at nurses, midwives from the Ministry of Health and health staffs of NGOs and UN agencies. The magazine aims at improving their medical knowledge and practices.

All medical professionals are greatly encouraged to contribute to the magazine. By doing so, they will take part in the improvement of the health workers’ competence and the services they deliver to the Cambodian population.

The magazine is distributed by Aide Médicale Internationale (AMI) to all nurses and midwives in Pursat, Battambang, Banteay Meanchey, Oddar Meanchey and Siem Reap provinces and in Pailin city. AMI also invites all organisations and cooperating agencies to subscribe, purchase and sponsor the distribution in new provinces. They will ensure the project sustainability and will help more health workers to have access to the magazine.