Towards Healthier Mothers, Children and Families:
a nutrition guide for community health workers

World Health Organization
Regional Office for the Western Pacific
Manila
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Foreword

In the past 50 years, there have been very significant improvements in the health situation around the world. The average infant mortality rate has declined by around 50 per cent and average life expectancy has increased from 50 years in 1960 to 64 years in 1998. Socioeconomic progress and efforts of governments and health organizations have brought about these improvements.

However, the rate of socioeconomic progress is not the same for all countries, nor is it the same within a country. There are countries that have developed rapidly and there are countries that have lagged behind. In the same country there are places with marked economic progress and there are areas stricken with poverty.

The uneven distribution of wealth and resources means that good nutrition and education are still elusive to many. Malnutrition, infectious diseases and high fertility continue to afflict poor families. Natural disasters and conflicts compound these problems.

The same socioeconomic progress that has improved the lives of most people has also influenced dietary patterns and physical activity. Sweet, sugary, fatty and salty food are now commonplace. Lifestyles have become more sedentary as machines have taken over much of the physical work. Obesity, hypertension and heart ailments have become important causes of diseases and deaths.

Most developing countries are facing nutritional problems that result from both the lack and excess of food or specific nutrients. Particular care is needed to achieve balanced diets.

Where nutritional problems exist, the population suffers, and mothers and children suffer the most. They are particularly vulnerable because their nutritional needs are increased during pregnancy and lactation in mothers, and during rapid growth and development in children.

The fight against malnutrition should be pursued more aggressively. Governments and health organizations should continue with their struggle. More importantly, individuals and their families should be empowered to make better nutrition choices. This manual aims to help in the dissemination of nutrition information for better health.

Shigeru Omi, M.D., Ph.D
Regional Director
WH0 Regional Office for the Western Pacific
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Introduction

How to use this manual

This manual is for community health and/or nutrition workers. However, it may also be useful to primary and secondary school teachers and other nutrition advocates.

This manual offers practical information and simple ways to encourage mothers, caregivers, children and families to adopt good nutrition practices for health.

The manual is divided into three parts

Part 1 is concerned with nutrition for the family. The nutritional needs and care according to the different stages in the life cycle are outlined here.

Part 2 deals with the nutritional needs of individuals with nutritional problems. It covers the signs and symptoms, risk factors, prevention and what you can do for each condition.

Part 3 is all about food and nutrients. It includes basic nutrition knowledge such as nutrients in food, food properties and micronutrient supplementation. Community health and nutrition workers are encouraged to read this part before using the manual.

You can read through this manual to obtain general information on nutrition and community nutrition work.

You can also use this manual as a guide on what to do in particular nutrition and health situations.

This manual, however, may need to be modified according to country situations to be more applicable and relevant.

Attached as Annex, is a leaflet “How to Assess if a Child and Adult are Overweight”. This leaflet is a tool to determine the weight for height in children and the Body Mass Index (BMI) in adolescents and adults in order to assess if overweight. Such assessment will encourage the health worker to give special attention on recommendations for Obesity and Diabetes mellitus, together with other sections of the book.

At the end of this manual, you will find a list of references that were used in the development of this manual and which you may read if you want to know more about specific topics.
What you can do to improve the nutrition of mothers, children and families

Your task is to help improve the nutritional status of children, mothers and families.

- You can give mothers, caregivers and families important nutrition information so that they are able to choose better food options and adopt good nutrition practices.
- You can identify mothers, children and members of the family who are most likely to develop nutrition problems and guide them on what to do before any problem arises.
- You can identify individuals and families who already have nutritional problems and guide them on how to correct the condition.
- You can also initiate or participate in community action for improving nutrition.

You are faced with a hard task. Eating patterns and food choices may be among the most difficult behaviours to change. But like most behaviours, they can be altered.

Becoming a nutrition advocate

To encourage individuals and families to adopt good nutrition practices, you should have a good knowledge of nutrition and favourable nutrition practices so that you can share correct information.

You should be aware of the local food situation, such as the seasonal availability of foods and whether foods are available to all members of the community. You should know the nutritional value of food available and be able to identify good sources of every important nutrient. These will help you give food recommendations that are appropriate to the local situation.

You should know the nutrition beliefs and practices in your community. You need to find out if a belief or practice is good, neutral or unhealthy. You should promote good nutrition practices and discourage harmful ones and/or suggest alternatives.

You should be able to identify common nutrition problems in your community and find out who are most affected. This will help you focus your efforts on particular activities aimed at solving the problems and helping the most affected population groups.
Many individuals and families may not come to you for nutrition information. You need to **reach out** to these families. If possible, visit them at home or participate in community activities that will give you a chance to meet them and learn about their food practices and nutritional status.

You have to **deal with individuals and groups** in a manner that is acceptable. You should be able to talk in simple and understandable language, listen and respect other people's ideas and opinions, and correct bad nutrition beliefs and practices tactfully.

You have to **work with** your community and other individuals and organizations that strive to improve nutrition. You can help in getting people together to discuss nutrition concerns and issues, make decisions and take actions. Alone you will not be able to make significant improvements. Working with others, you can achieve more.

**On sharing information**

Be appropriate. If a mother comes to the clinic with a child with diarrhoea and the most probable cause is food or water contamination, discuss with her how to make food and water safe and how to feed the child.

Do not give too much information at one time. Give only the most important messages. This will prevent confusion and help individuals remember and focus their attention on the message that you are giving.

Give practical advice. Do not give suggestions that are too difficult, time consuming or expensive for the family. If eating a fruit with every meal is not possible, you may advise increasing the intake of vegetables or other sources of vitamins.

Find interesting ways of sharing information with individuals and groups. You may change the usual mothers’ class to cooking sessions where participants share recipes and discuss how to improve food quality. During community gatherings, you may initiate a game, presentation or contest that will highlight an important nutrition message.

Encounters with individuals and families in the health centre, in the home, in health education classes and in both formal and informal community gatherings are good opportunities for giving nutrition information. Use these opportunities.
A health and/or nutrition worker can help mothers, children, and families achieve good nutrition.
Nutrition for the family

• Good nutrition for everybody
• 0-6 months
• 7-12 months
• 1-5 years
• Older children and adolescents
• Pregnancy
• Lactation
• The elderly
Good nutrition is:
1. Eating a variety of food;
2. Eating the right amount of food;
3. Using only iodized salt; and
4. Consuming food and drinks that are safe.

1. Eat a variety of food.

The body needs different nutrients. A deficiency in one of the nutrients over time will lead to disease.

There is no food that can supply all the nutrients needed by the body, except for breastmilk during the first 4-6 months of an infant’s life.

Eating a variety of food is the best way to ensure that a person will get all the nutrients she/he needs.

How to ensure enough variety in food

Everyone should eat many different kinds of food, and not too much of just one or two kinds.

This means eating a balanced diet, which should consist of a combination of a staple food such as rice, potato or wheat, a protein food such as fish, meat, liver, eggs, beans and lentils, milk and milk products and vitamin, mineral and fibre foods such as vegetables and fruits.

It also means varying the foods in the daily meals. If rice and fish were eaten in one meal, the next meal should include vegetables and/or fruits.

Suitable snacks may help add variety. If fruits are not usually eaten with regular meals, they may be eaten as snacks.

Eating a variety of food is the best way to ensure good nutrition.
2. **Eat the right amount of food.**

Everyone needs the right amount of food to provide energy and supply the body with the right amount of nutrients for growth, development and normal functioning.

If not enough food is eaten, a child can fail to grow and develop. In adults, this can result in weight loss and weakness. At any age, it may lead to decreased resistance to infection and, if not corrected, may result in death.

If too much food is eaten, there can be too many nutrients for the body’s needs. This may lead to excessive weight gain, obesity, diabetes, hypertension and diseases of the heart.

**How to tell if food intake is adequate:**

A good indicator of food intake is a person’s weight. If the right amount of food is being eaten, an adult will maintain a healthy weight. This means she/he is not too fat or thin and weight is within certain limits for a given age and height.

In children the right amount of food intake is seen as steady growth, and in pregnant women as a steady weight gain.

On the next page you will find an example of a food pyramid. It is a guide on how much to eat of the different kinds of food. The family should eat more of the food from the base of the pyramid and less from the top.

**Some individuals need more food than others:**

The right amount of food for every individual varies according to age, physical activity, body structure, and conditions such as pregnancy, lactation, fever, diarrhoea and other diseases.

A one-year old child needs more food than an adult in relation to body weight. The child requires more nutrients for growth, while the adult has already achieved full growth potential.

A farmer needs more food than an office worker. The more physical work is done, the more food is required.

Two persons of the same age, sex and activity but with different body build have different food requirements. The bigger the bone structured and muscle mass of a person, the higher is the food requirement.

Pregnancy and lactation, fever, diarrhoea, disease and recuperation increase the requirement for nutrients. More food should be consumed under these conditions.
The Food Pyramid

Eat more of the food from the base and less from the top of the pyramid, and drink about 6-8 glasses of water per day.

- Oils, sugary foods and drinks, alcohol and salt
- Meats, fish, milk and milk products, eggs, beans and lentils
- Fruits
- Vegetables
- Rice, bread, other grains, potatoes, sweet potatoes, cassava and other starchy food.
3. **Use only iodized salt.**

Iodine is an essential nutrient to ensure healthy growth and mental development.

In many places, the soil, water and food that is grown from them, do not contain enough iodine to meet human and animal needs.

Not enough iodine in food can lead to varying degrees of retardation and impairment of mental and physical development, miscarriage and stillbirths.

4. **Consume food and drinks that are safe.**

Food and water are considered safe if they are free from harmful substances such as germs, toxins or poisons that can make a person sick.

If food or water is unsafe, diarrhoea and/or vomiting can happen.

The main water contaminant is human and animal waste. Contamination can take place at the water source, or during handling or storage.

To avoid contamination, a drinking water source should be far from where people and animals dispose of their waste.

If the drinking water source is an open well or spring, prevent run-off water, soil and dirt from getting into it, keep it covered when not in use, ensure that its immediate surroundings are well drained, and keep animals away.

Pesticides and other harmful chemicals may also contaminate water sources near farms, industrial areas or other places where run-off water from farms, mining sites and factories can get into streams and rivers. If fishes or water animals have died in a water source, do not use water from that source.

**How to ensure drinking water is safe:**

- Get drinking water from a safe source.
- If you are not sure that the drinking water source is safe, treat water by boiling.
- If drinking water has to be fetched, containers and dippers should be clean and the person fetching the water should have clean hands.
- Store drinking water in clean containers, change it regularly and keep it covered to keep dust, flies and animals away.

Food can be made unsafe during handling, preparation and storage. Hands that have touched the food in the farm, in the market or in the kitchen can contaminate it. Water, dust, insects, rats, dirty containers and dishes are also common sources of contamination.

Cooking is the best way to make food safe. However, cooked food spoils fast. It is best that food is eaten soon after it is cooked, but this is not always possible. If food is to be stored for more than four hours, it should be stored hot, above 60°C, or cool, below 10°C.
How to keep food safe:

- Cook food thoroughly. Ensure that food is steaming hot inside and outside.
- Avoid storing cooked foods, but if you need to, store it carefully.
- Reheat cooked foods thoroughly.
- Avoid contact between raw foods and cooked foods. The raw food will make the cooked food unsafe.
- Wash fruits and vegetables. Pesticides, night fertilizer, soil and dirty hands may have contaminated them.
- Wash hands thoroughly with soap and water before eating, before preparing food, and after using the toilet.
- Keep dishes, food containers, utensils and all kitchen surfaces clean.
- Protect foods from insects, rodents and other animals.
- Use safe water.
0-6 months

Nutrition care:

1. Put the baby to the mother's breast immediately after delivery and breast-feed the baby within one hour after birth.

2. Position the baby properly for breast-feeding.

3. Breast-feed as often as the baby demands, day and night.

4. Give only breastmilk and no other food or drink from birth up to 4-6 months.

5. Monitor the baby's growth and development.

6. Start to give appropriate complementary foods at 4-6 months.

Do not starve the baby for hours after delivery, do not give prelacteals such as plain or sugared water or herbal decoctions and do not wait for the passage of green stool before breast-feeding the baby. These practices waste colostrum and deprive the baby of needed nutrients and other protective substances.

Putting the baby to the mother's breast right after delivery and breast-feeding the baby within one hour after birth will stimulate milk production and help create a close relationship between the mother and the baby.

Give colostrum to the baby. Colostrum is the first milk that comes out of the mother's breast after delivery. It contains substances that protect the baby against infection and malnutrition.
2. Position the baby properly for breast-feeding.

When the baby is positioned properly during breast-feeding, problems are prevented and the baby has satisfactory feeds.

If the mother has breast-feeding problems, such as not having enough milk, pain in the breasts or sore or cracked nipples, she is more likely to stop breast-feeding.

The correct breast-feeding position can be achieved while the mother is sitting, lying down or standing.

Helping the mother to position the baby for breast-feeding:

- Let the mother do as much as possible herself. This will make her learn fast and give her a feeling of satisfaction and confidence.
- Always observe a mother breast-feeding before you help her. This will help you to understand her situation and give appropriate assistance.
- Give the mother help only if she has difficulty. If the baby is relaxed and taking long deep sucks, and the mother is comfortable, there is no need to intervene.
- Give clear instructions and, if you need to handle her baby, make sure she understands what you are doing so that she will be able to do it herself later.

Correct position for breast-feeding:

- Mother is relaxed and comfortable.
- Baby's body close, facing breast.
- Baby's head and body straight.
- Baby's chin touching breast.
- Baby's bottom is supported, if a newborn.
Breast-feeding problems and what to do about them:

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>WHAT TO DO</th>
</tr>
</thead>
</table>
| **Not enough milk**                         | 1. Initiate sucking as soon as possible  
2. Increase fluid intake to the mother.  
3. Ensure correct feeding position.  
4. Let the baby suckle frequently on both breasts.  
5. Give only breastmilk. Do not use a pacifier.  
6. Breast-feed when the baby is hungry and at night.  
7. Express milk manually if mother has to leave home for work. |
| **One or both breasts are painful and appear tense and shiny** | If the baby is still able to suckle:  
1. Ensure correct feeding position.  
2. Let the baby suckle frequently on both breasts.  
3. Breast-feed when the baby is hungry and at night.  
4. Express milk manually if mother has to leave home for work.  |
|                                              | If the breasts are so engorged that the baby cannot suckle:  
1. Express breastmilk manually, put either warm or cold compresses to the breasts or gently massage the skin around the nipple to stimulate milk flow and to make the area around the nipple soft enough for the baby to suckle.  
2. Ensure correct feeding position.  
3. Let the baby suckle frequently on both breasts.  
4. Breast-feed when the baby is hungry and at night.  
5. Express milk manually if mother has to leave home for work. |
Breast-feeding problems and what to do about them:

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>WHAT TO DO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sore or cracked nipples</td>
<td>1. Wash nipples with clean water only once a day, avoid using soap, cream or spray and do not rub hard with a towel.</td>
</tr>
<tr>
<td></td>
<td>2. Ensure correct feeding position.</td>
</tr>
<tr>
<td></td>
<td>3. Continue to breast-feed from both breasts.</td>
</tr>
<tr>
<td></td>
<td>4. Leave a drop of milk on the nipples and rub over it and the areola after breast-feeding to help the skin to heal.</td>
</tr>
<tr>
<td></td>
<td>5. Do not wear a bra.</td>
</tr>
<tr>
<td></td>
<td>6. If the mother cannot tolerate breast-feeding, express milk manually.</td>
</tr>
<tr>
<td>Part of one breast is painful, with or without fever and onset is a week or more after delivery</td>
<td>1. Ensure correct feeding position.</td>
</tr>
<tr>
<td></td>
<td>2. Let the baby suckle frequently on both breasts and gently massage the breast while the baby is suckling.</td>
</tr>
<tr>
<td></td>
<td>3. Start to breast-feed on the unaffected breast.</td>
</tr>
<tr>
<td></td>
<td>4. If breast-feeding is difficult, express milk manually.</td>
</tr>
<tr>
<td></td>
<td>5. Do not wear a bra.</td>
</tr>
<tr>
<td></td>
<td>6. Apply compresses on the affected breast between feeds.</td>
</tr>
<tr>
<td></td>
<td>7. Give paracetamol for pain and/or fever.</td>
</tr>
<tr>
<td></td>
<td>8. If symptoms are severe or if there is no improvement after 24 hours, refer the mother to a physician.</td>
</tr>
</tbody>
</table>
4. Breast-feed as often as the baby demands, day and night.

Let the baby feed from the breast as often as the baby wants. This will ensure that the baby gets enough nutrients. This is also the best stimulus for continuous milk production.

Use both breasts at each feeding. After one breast is emptied, offer the other breast. If the baby does not want to feed anymore, offer first the breast that has not been emptied, in the next feeding. This will prevent engorgement and breast infection.

5. Give only breastmilk and no other food or drink from birth up to 4-6 months.

Do not give any other food or drinks, such as plain water, sugared water or fruit juice, to the baby from birth up to 4-6 months. Breastmilk will satisfy all the nutrient needs of the baby at this age.

Other food and drinks may cause digestion problems and infection. This will also decrease the production of breastmilk.

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**How to express breastmilk:**

1. Carefully wash and dry hands.
2. Use a wide-mouthed, clean, container to collect the breastmilk.
3. Position the thumb and forefinger opposite each other on the edge of the areola then gently bring them together in a squeezing manner. Continue until the flow of milk slows down.
4. Press the areola from all sides to express from all areas of the breast.
5. Repeat the process on the other breast. Switch from one breast to another to completely empty both breasts.
6. Cover and store expressed breastmilk in a cool place. It will stay fresh and safe for up to eight hours, and for one day if refrigerated.
7. Do not boil or heat expressed breastmilk. It will destroy the substances that protect the baby from infections. If refrigerated, take milk out one hour before the feed and let it stand in a cool place.
6. **Weigh the child at birth and monitor growth thereafter.**

A good birthweight is 2500 g or more. If the birthweight is less than 1500 g, refer immediately to the hospital. If the weight is more than 1500 g but less than 2500 g, the baby can be looked after at home but needs special care.

A steady weight gain is an indication that the child is adequately fed.

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**Special home care for babies with low birth weight (between 1500 g - and 2500 g):**

- If the baby is able to suck properly, breastfeed every 2-3 hours. If not, feed the baby every 2-3 hours with expressed breastmilk using a dropper or a spoon.

- Keep the baby warm with a blanket and or by holding the baby skin-to-skin between the mother’s breast and wrapped around with a blanket. The skin-to-skin contact is preferred particularly if the baby’s weight is less than 2000 g.

- Postpone bathing.

---

7. **Start to give complementary foods at 4-6 months.**

In addition to breastmilk, gradually introduce complementary food at 4-6 months. Begin to give complementary foods only if the baby shows interest in semisolid foods, appears hungry after breast-feeding or is not gaining enough weight.

Give small amounts of complementary foods one at a time after breast-feeding. Start with one or two spoonfuls of soft and easy to digest food, such as porridge or mashed ripe fruit, once or twice a day and gradually give mixes of complementary food.

If the baby refuses a new food, give it some other time. The baby will eventually learn to like it.

Introducing complementary food too early will decrease the production of breastmilk due to decreased suckling. This may lead to undernutrition and the baby will be more prone to indigestion and diarrhoea.

Withholding complementary foods when the baby is already 6 months old is likely to result in undernutrition. At 6 months, the amount of breastmilk is not enough to keep most children growing well. It also becomes more difficult to encourage the baby to try other foods as the child becomes older.
**7-12 months**

**Nutrition care:**

1. Continue breast-feeding.
2. Give the child complementary food regularly, about 3-5 times per day.
3. Monitor the child's growth and development.

---

1. **Continue breast-feeding as often as the baby wants.**

At 7-12 months, breastmilk is as important as the complementary food to maintain normal growth and development.

Breast-feeding may be continued up to 2 years and beyond.

2. **Give the child complementary food regularly, about 3-5 times per day.**

If the child is breast-fed, give complementary foods 3 times daily. If the child is not breast-fed, give complementary foods 5 times daily.

The child at 7-12 months needs to be given nutrient-dense food because the stomach is too small to accommodate large amounts of dilute, watery food.

Make complementary food nutrient dense by making them thick and by adding oil, butter, margarine, milk or ground nuts.

As the teeth of the child erupt and he is able to chew, gradually give more solid foods.
Examples of mixes of complementary foods

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1/2 cup porridge</strong></td>
<td><strong>1/2 piece boiled sweet potato</strong></td>
<td><strong>1/2 cup boiled mung beans</strong></td>
</tr>
<tr>
<td><strong>1/2 heaped tbsp cooked meat, flaked</strong></td>
<td><strong>1 heaped tbsp cooked dried fish, pounded</strong></td>
<td><strong>1 tbsp sugar</strong></td>
</tr>
<tr>
<td><strong>2 heaped tbsp cooked vegetable, shredded</strong></td>
<td><strong>1/2 piece boiled carrot</strong></td>
<td><strong>1/2 glass milk</strong></td>
</tr>
<tr>
<td><strong>1 heaped tbsp cooked dried fish, pounded</strong></td>
<td><strong>1 tbsp (15 g) oil or margarine</strong></td>
<td><strong>1/2 cup boiled mung beans</strong></td>
</tr>
</tbody>
</table>

1. Mix porridge, oil/margarine, cooked flaked meat and vegetable.
2. Add fish and oil or margarine.
3. Mix well.

Each example is good for one meal of a 1 year old child.
HOW TO GIVE COMPLEMENTARY FOODS

1. Gradually introduce complementary food to the baby at 4-6 months of age.

- Begin to give complementary foods only if the baby shows interest in semisolid foods, appears hungry after breast-feeding or is not gaining enough weight.
- Give small amounts of complementary foods one at a time. Start with one or two spoonfuls of one food such as porridge or mashed ripe fruit once or twice a day and gradually give mixes of complementary food.
- Give complementary foods after breast-feeding. If given before breast-feeding, this will make the baby full and refuse to suckle the breast.
- Start with complementary foods that are soft and easy to eat and digest to prevent problems such as vomiting, diarrhoea and flatulence. A 6 month old baby is not able to chew food yet and is just learning to swallow solids. Solid foods should be finely minced to avoid choking.
- If the baby refuses a new food, give it some other time. The baby will eventually learn to like it.

2. Use a spoon and cup to give complementary food to the baby.

- Using a spoon and cup to give complementary food makes it easier to teach the baby how to eat and these are easy to clean. Avoid using feeding bottles and teats to encourage the baby to continue suckling from the mother’s breasts.
- Giving fruit juice, milk and other drinks in a feeding bottle discourages the baby from suckling from the mother's breast. This will result in decreased breastmilk production which is not good as the baby still needs all the nutrients she/he can get from breastmilk. Sugary food and drinks will also encourage tooth decay.
## How to give complementary food

### 3. Do not give glucose drinks, sodas, and softdrinks, and avoid giving spicy foods to the baby.

- Glucose drinks, sodas and softdrinks contain mostly sugar and no other nutrients. These encourage tooth decay and may reduce the baby’s appetite for other foods that have a variety of nutrients.
- Giving the baby spicy foods may make it difficult to teach the baby to eat other foods.

### 4. Make complementary food safe.

- Cook the baby’s food thoroughly ensuring that it is steaming hot inside and outside.
- Wash hands before preparing the baby's food.
- Wash fruits and vegetables thoroughly.
- Prepare the baby's food just before it will be eaten, to prevent contamination and spoilage.
- Keep dishes, food containers, utensils and all kitchen surfaces clean.
- Protect food from insects, rodents and other animals.
- Use safe water.

### 5. When the baby is already taken to eating, give mixes of complementary food.

- The mixes of complementary food should contain at least 3-4 different kinds of food to ensure that the child gets all the nutrients she/he needs.
- Finely flaked fish, mashed vegetable, egg, beans, ground-up nuts, finely cut-up meat or other soft and easily digested food from the family pot and a little oil maybe added to porridge or pap to ensure that the baby is getting a variety of food.
- Give the baby mashed fruits, biscuits, bread, milk or fruit juice from the cup in between mixes of complementary food.
3. Monitor the child's growth and development.

Growth and development monitoring allows the family and health worker to find out if the child is growing and developing well or not. This encourages prompt action before any complication sets in, and when the condition is much easier to correct.
1-5 years

**Nutrition care:**

1. Ensure that the child receives regular meals about 5 times per day.

2. Continue to breast-feed the child up to 2 years and beyond.

3. At about 2 years, wean the child slowly from the mother’s breast.

4. Monitor the child’s growth and development.

1. At 1 year, ensure that the child receives regular meals about 5 times per day.

From one year onwards, breastmilk can no longer provide most of the nutritional needs of the child.

Give the child food regularly, about 5 times per day. The child may eat regular family meals, but should also be given food between meals. This will help increase food intake and provide an opportunity to eat varied food.

Give the child her/his own plate or bowl of food during meals. This makes the caregiver fully aware of what and how much food the child has eaten.

If possible, encourage the child to drink a glass of milk per day. This will help fulfil the child’s nutrient needs.

Give the child as much variety of food as possible to ensure that the child gets all the nutrients she/he needs. Giving only the foods that the child prefers, even in large amounts, may cause a deficiency of the nutrients that are not found, or are present only in very small amounts, in the preferred food.

Encourage regular meal times and discourage continuous eating to prevent obesity and tooth decay.

*If siblings eat from one common plate, the younger child who is smaller, slower and can hardly feed himself will not get a fair share of food.*
2. **Continue to breast-feed the child up to 2 years and beyond.**

Breast-feeding may be continued up to about 2 years even if the child is eating well. It will help augment the nutrients the child gets from food and will help prevent infection and undernutrition.

In rare occasions, a child may spontaneously stop breast-feeding at one year. If this happens, ensure that the child is getting enough food and a mixture of different kinds of food.

Beyond 2 years, the mother may still breast-feed if the child still wants to. Eventually the child will not want to breast-feed and will stop.

3. **At about 2 years, wean the child slowly from the mother's breast.**

Stopping breast-feeding suddenly may make the child anxious and unhappy.

Make sure that the child is already eating well, about 5 times per day, and increase the amount and variety of food that you give to the child.

Gradually decrease the frequency of breast-feeding. At first, the morning feeds may be stopped. After a week or two the afternoon feeds, and later the night feeds.

Give the child plenty of attention. Distract the child's attention from breast-feeding with play and giving enough of other foods.

Do not push the child away from the breast if she/he wants to breast-feed. The child may feel rejected and this will make the child anxious.
4. **Monitor the child’s growth and development.**

Monitoring growth and development allows the family and health worker to find out if the child is growing and developing well or not. This encourages prompt action before any complication sets in, and when the condition is much easier to correct.

**A healthy child:**
- looks well and is not too thin or too fat;
- has a good appetite;
- is happy and playful;
- has eyes and hair that are shiny;
- has skin that is smooth and has lustre; and
- becomes taller and heavier at a steady rate.

**A child with nutrition problems:**
- seems not to be getting heavier or taller, or only very little;
- looks weak, thin;
- is not interested in other children or with play;
- has dull eyes and hair; and
- has dry skin, sometimes with discoloration and seems to peel or has sores or lesions or looks pale.
Older children and adolescents

Nutrition Care:

1. Encourage the older child or adolescent to eat sufficient amounts of food.
2. Encourage the older child or adolescent to eat as much variety of food as possible.
3. Encourage the older child or adolescent to eat suitable snacks.

The older child or adolescent needs more food to sustain rapid growth and energy for school, work and play. This need is often unmet as older children and adolescents tend to eat less food than they need, or they may not get enough food outside the home.

Give them more food during breakfast, food to bring to school, as snack, and a good lunch and dinner. However, if obesity is a problem in adolescents in your area, you will need to be careful about promoting larger meals and snacks.

2. Encourage the older child or adolescent to eat as much variety of food as possible.

At this age, girls begin menstruation and boys experience rapid muscular growth. This requires many different kinds of nutrients that come from a variety of food. However, the variety of food available to older children and adolescents outside the home is usually limited.

Give older children and adolescents foods that are usually not available outside the home such as vegetables and fruits.
3. Encourage the older child or adolescent to eat suitable snacks.

Eating suitable snacks will help provide the needed nutrients and a variety of foods.

Older children and adolescents usually prefer sugary, fatty or salty foods for snacks. These foods often have low nutritional value and may take the place of suitable snacks that will provide the needed nutrients. These foods may also encourage obesity and tooth decay.

Give the older child or adolescent suitable snacks at home or to bring to school.

**Suitable snacks**

- Milk
- Cheese
- Fresh fruit
- Fresh fruit juice
- Sandwiches
- Carrot sticks
- Steamed corn, sweet potato, cassava or banana
- Peanuts, other nuts and beans

**Unsuitable snacks**

- Cakes with too much sugar and/or fats
- Candies
- Juice drinks, softdrinks and sodas
- Canned fruit
- Cookies and cream biscuits
- Chips and fries
- Pork skin crackers
- Ice sticks
Pregnancy

**Nutrition care:**

1. Encourage the pregnant woman to eat sufficient amounts of food.
2. Encourage the pregnant woman to eat as much variety of food as possible.
3. Give micronutrient supplements, as appropriate.
4. Encourage the pregnant woman to avoid smoking, drinking alcoholic drinks and taking medications without the advice of a health worker.
5. Monitor weight gain.

1. **Encourage the pregnant woman to eat sufficient amounts of food.**

Eating sufficient amounts of food will keep the pregnant woman healthy and her baby growing well.

Suitable snacks will help provide enough food intake for the pregnant woman.

Food intake should not be restricted during pregnancy unless there is a medical reason.

A pregnant woman may have discomfort or problems related to eating. Give appropriate advice to help her cope with the condition.
What to do for common eating-related discomfort or problems during pregnancy

**Nausea and vomiting**
- Eat small, frequent meals.
- Eat a small serving of bread, rice or biscuit immediately after waking up.
- Take small sips of water.

**Heartburn or indigestion**
- Eat small, frequent meals.
- Avoid spicy or greasy foods.
- Avoid lying down right after eating.

**Constipation**
- Increase usual fluid intake by 2-4 glasses per day.
- Eat lots of vegetables and fruits.
- Take regular exercise such as walking.

**Haemorrhoid**
- Avoid long periods of standing.
- Avoid constipation.
- Avoid straining during bowel movements.
- Bathe the perineum with warm water twice a day.
- Replace the haemorrhoid with a finger after passing stool, wash hands thoroughly with soap and water after replacing haemorrhoid.

2. **Encourage the pregnant woman to eat as much variety of food as possible.**

Encourage the pregnant woman to eat a variety of food to ensure that she gets all the nutrients she needs for herself and her baby. There is no need to buy special foods as long as her usual food intake already provides a variety of food.

Eating only a very limited number of foods even in large amounts, may cause a deficiency of nutrients that are not found, or are present only in small quantities, in the preferred food.

Eating a variety of food will help prevent or correct problems that may develop during pregnancy such as anaemia and goitre in the mother and low birth weight and congenital anomalies in the baby.

Suitable snacks such as fruits, fruit juices, milk, corn, sandwiches or nuts will help provide variety in the diet.

If the family believes in food restriction during pregnancy, clarify the misconception and/or try to identify available foods that may be eaten to replace the nutrients that will be missing if particular foods are restricted.

Also encourage the pregnant woman to take only iodized salt to prevent iodine deficiency.
## Misconceptions and facts related to nutrition during pregnancy

<table>
<thead>
<tr>
<th>MISCONCEPTION</th>
<th>FACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restricting the amount of food eaten, particularly during the last 3 months of pregnancy, will make delivery easy and prevent the likelihood of a caesarian section.</td>
<td>Food restriction does not make delivery easy. The small pelvis of the mother and the big head of the baby are the causes of a difficult delivery, and not eating more food during pregnancy.</td>
</tr>
<tr>
<td>Eating meat of wild animals, dark meat, crabs, and particular fruits and vegetables will cause birth defects.</td>
<td>Food that is safe to eat for other members of the family is safe for the pregnant woman and her baby. In areas where food is scarce or there is less variety of food, this misconception is dangerous because it will deprive pregnant women of important nutrient sources.</td>
</tr>
<tr>
<td>Oedema is a good sign in pregnancy and is induced by eating only fermented porridge combined with very little portions of other foods.</td>
<td>Oedema of the face and hands is a danger sign in pregnancy. Women with oedema of the face and hands should be referred to a health facility where essential obstetric services are available. Pregnant women should eat a variety of foods to ensure that she gets all the nutrients she needs for herself and her baby.</td>
</tr>
<tr>
<td>If an excessive craving for particular foods is not satisfied, it will cause abortion or miscarriage.</td>
<td>Excessive craving for particular foods may be a sign of a deficiency in nutrient intake, particularly iron, or a need for attention. If not satisfied, this will not cause miscarriage. The food craved may be provided as long as the pregnant woman also eats different kinds of foods to get all the needed nutrients for her health and that of her baby.</td>
</tr>
</tbody>
</table>
3. **Give micronutrient supplements as appropriate.**

Pregnant women are more prone to develop anaemia and goitre.

Give iron, folate, vitamin A and iodine supplements according to established protocol in your area.

4. **Encourage the pregnant woman to avoid smoking, drinking alcoholic drinks and taking medications without the advice of a health worker.**

Smoking may result in a low birth weight baby and congenital problems. Smoking, alcoholic drinks and some drugs may cause birth defects.

5. **Monitor weight gain.**

If a pregnant woman is eating enough food, she will gradually and steadily gain between 6 and 12 kg during pregnancy. This is true even if she is overweight.

For the first three months 1-2 kg is enough. For the succeeding months until delivery, a pregnant woman should gain 1 - 1.5 kg each month.

Encourage a pregnant woman to eat more food if she fails to gain weight or gains only very little weight, during pregnancy.
Lactation

**Nutrition care:**

1. Encourage the lactating woman to eat sufficient amounts of food.
2. Encourage the lactating woman to eat as much variety of food as possible.
3. Give micronutrient supplement, as appropriate.
4. Encourage the lactating woman to avoid smoking, drinking alcoholic drinks and taking medications without the advice of a health worker.

1. **Encourage the lactating woman to eat sufficient amounts of food.**

Eating sufficient amounts of food will keep the lactating woman healthy and her baby growing well.

Food intake should not be restricted during lactation unless there is a medical reason.

Suitable snacks will help provide enough food intake for the lactating woman.

2. **Encourage the lactating woman to eat as much variety of food as possible.**

Encourage the lactating woman to eat a variety of food that will supply all the nutrients she needs for herself and her baby. There is no need to buy special foods as long as her usual food intake already provides a variety of food.

Eating only a very limited number of foods, even in large amounts, may cause a deficiency of nutrients that are not found, or are present only in small quantities, in the preferred food.

Eating a variety of food will help prevent or correct problems such as anaemia and iodine deficiency.

Suitable snacks, such as fruits, fruit juices, milk, corn, sandwiches or nuts, will help provide variety in the diet.

If the family believes in food restriction during lactation, clarify the misconception and/or try to identify available foods that may be eaten to replace the nutrients that will be missing if particular foods are restricted.
3. Give micronutrient supplements, as appropriate.

Pregnancy and delivery uses up the iron, iodine and Vitamin A stores of a woman. Supplementation will help restore these micronutrients lost and help prevent deficiencies during lactation both in the mother and her baby.

Give iron, folate, iodine and Vitamin A supplement according to established protocol in your area.

4. Encourage the lactating woman to avoid smoking, drinking alcoholic drinks and taking medications without the advice of a health worker.

If the mother or somebody in the household is smoking, the child is more prone to develop respiratory problems.

Alcohol and some medications are passed from the mother to the baby through breastmilk. These may make the baby sick.
The older persons

**Nutrition care:**

1. Encourage the older persons to eat sufficient amounts of food.
2. Encourage the older persons to eat as much variety of food as possible.
3. Discourage the older persons from eating fatty and salty foods.
4. Encourage the older persons to take in enough fluids.
5. Encourage the older persons to take in enough fibre foods.

**1. Encourage the older person to eat sufficient amounts of food.**

The older person need less food than younger adults because of less physical activity and slowing down of body processes. However, many of them are not able to satisfy their food requirements because of poor appetite, loss of teeth or digestion problems.

Give soft and easy to chew food, and give snacks in-between regular meals.

**2. Encourage the older persons to eat as much variety of food as possible.**

Eating only a few preferred foods even in large amounts may cause a deficiency of nutrients that are not found, or are present only in small quantities, in the preferred food.

It may be necessary to shred meat and vegetables, grind nuts or puree fruits for the older persons to ensure that they get all the nutrients they need.

**3. Discourage the older persons from eating fatty and salty foods.**

The older persons are more likely to suffer from accumulation of fats in the blood vessels. They are also more likely to suffer from hypertension and problems with eliminating salts from their body.

Make their food less fatty by trimming visible fat off the meat that they eat, and avoid frying their food. Give them low fat milk instead of regular milk when available.

Make their food less salty by reducing or not adding table salt, soy sauce, fish sauce and other salt-rich condiments to their food.
4. Encourage the older persons to take in enough fluids.

The older persons may voluntarily restrict fluid intake. The trips to the toilet tire them easily or they may be suffering from urinary incontinence. This may result in constipation.

Encourage the older persons to take enough fluids. Milk and milk shakes may be added to their diet. This will not only provide additional fluid, but will also provide nutrients that may be lacking in their diet.

5. Encourage the older persons to take in enough fibre foods.

Many older persons may suffer from constipation. This may be caused by poor intake of fibre foods and fluids, less physical activity and the changes in their digestive system.

Encourage fibre foods such as vegetables, whole grain cereals or root crops regularly.
People at different stages in life have different nutritional needs.
Nutrition for individuals with special needs

- Diarrhoea, acute respiratory infection and other infectious diseases
- Protein-energy malnutrition
- Iron deficiency anaemia
- Vitamin A deficiency
- Iodine deficiency
- Rickets and osteomalacia
- Obesity
- Diabetes mellitus
- Diseases of the heart and blood vessels
Diarrhoea, acute respiratory infection and other infectious diseases

Who are more commonly affected:
- children, especially if they are undernourished
- families living in overcrowded areas with no safe water source and no sanitary waste disposal.

Causes:
- unsafe water and food
- lowered resistance to infection, due to poor nutrition and lack of breastfeeding
- overcrowding

Effects:
- lead to or worsen malnutrition
- decrease appetite
- may reduce food absorption

Signs and symptoms:
- fever
- vary depending on disease

What to do:

1. Assess breast-feeding and/or food intake.

Ask for:
- any feeding problem
- frequency of feeding
- food and drinks that are usually taken in and food restrictions

2. Assess physical well-being.

Determine if there are signs of malnutrition particularly, protein-energy malnutrition, iron, iodine and Vitamin A deficiency.

Give the primary treatment for the disease if you have been trained to do so. If not, refer the patient to a health facility where it can be managed.

3. Counsel the child's caregiver or client:

For infants up to 4 months:

Counsel the caregiver to breastfeed as often as the baby wants, day and night and not to give other foods or fluids.

- If breast-feeding less than 8 times in 24 hours, increase frequency of breast-feeding.
- If receiving other food or drinks, breastfeed more often, reduce other foods or drinks and use one cup and spoon, not a feeding bottle to feed the child.
For infants 4 up to 6 months:

Counsel the caregiver to breastfeed as often as the baby wants, day and night, and to start complimentary feeding when the baby is ready:

- If breast-feeding less than 8 times in 24 hours, increase frequency of breast-feeding.
- Start complimentary feeding when the baby shows interest in semi-solid foods, or appears hungry after breastfeeding, or is not gaining enough weight. Use cup and spoon, not a feeding bottle when giving complementary food.

For infants 6 up to 12 months:

Counsel the caregiver to breastfeed as often as the baby wants and to give baby nutrient-dense food.

- If not receiving other food or drinks yet, gradually start complementary feeding.
- Do not restrict food intake.
- Give nutrient dense food 3-5 times per day.
- Increase fluid intake if there is fever or diarrhoea.
- Make food interesting and appealing.

For children 12 months to 2 years:

Counsel the caregiver to breastfeed as often as the baby wants and to give baby nutrient-dense food.

- If not receiving other foods and drinks yet, gradually start complementary feeding.
- Do not restrict food intake.
- Increase fluid intake if there is fever or diarrhoea.
- Make food interesting and appealing.

For children 2 years and older:

- Do not restrict food intake.
- Give family foods at 3 meals a day. Also give nutrient dense food twice daily in between meals.
- Increase fluid intake if there is fever or diarrhoea.
- Make food interesting and appealing.

For adolescents and adults:

Counsel adolescents and adults.

- Eat balanced diet and take in enough fluids.
- Do not restrict food intake.

Food restriction during illness is a common cause of protein-energy malnutrition.
4. Treat disease condition according to local protocol if you have been trained to do so. If not, refer to a health facility for further management.

If there is thrush or oral ulcers, teach the mother to treat it at home, see page 44.

5. Follow up in three days. Check on feeding and weight until well.
Protein-energy malnutrition

Who are more commonly affected:

- infants with a birth weight of less than 2500 g
- bottle-fed infants
- siblings with birth interval of less than two years
- children who often get sick
- children of families living in overcrowded areas with no safe water source and no sanitary waste disposal

Causes:

- not enough food intake
- starting an infant on complementary food too early, (before 4 months) or too late, (after 6 months)
- breast-feeding stopped too soon, when the child is not yet eating very well
- not giving the child enough food during diarrhoea and other illness
- frequent infection such as diarrhea and acute respiratory infection
- inappropriate use of bottle-feeding
Towards Healthier Mothers, Children and Families: a nutrition guide for community health workers

Signs and symptoms:

- low weight-for-age due to failure to grow and gain weight
- child is so thin that the shape of the bones can be seen, or the child has swollen legs/arms, face due to accumulation of fluid (oedema)
- the child looks unhappy and is not interested in anything
- there may be signs and symptoms of specific nutrient deficiency, such as pallor or nightblindness
- there may be other health problems such as fever, cough, diarrhoea or other infections

What to do:

1. Assess the child's feeding.

Ask for:

- any feeding problem
- frequency of feeding in 24 hours
- what other foods or drinks are usually given
- what is used for feeding (cup and spoon and bottle)

2. Assess physical well-being.

Determine weight-for-age.

- If there is severe wasting or oedema of both feet, give a dose of Vitamin A and refer urgently to the hospital.
- If there is no severe wasting and/or oedema of both feet, look after the child at home.
3. Counsel the child's caregiver or client:

For infants up to 4 months:

Counsel the caregiver to breastfeed as often as the baby wants, day and night and not to give other foods or fluids.

- If breastfeeding less than 8 times in 24 hours, increase frequency of breast-feeding.
- If receiving other food or drinks, breastfeed more often, reduce other foods or drinks and use one cup and spoon, not a feeding bottle to feed the child.

For infants 4 up to 6 months:

Counsel the caregiver to breastfeed as often as the baby wants, day and night and to start complementary feeding when the baby is ready.

- If breast-feeding less than 8 times in 24 hours, increase frequency of breast-feeding.
- Start complementary feeding when the baby shows interest in semi-solid foods, or appears hungry after breastfeeding, or is not gaining enough weight. Use cup and spoon, not a feeding bottle when giving complementary food.

For infants 6 up to 12 months:

Counsel the caregiver to breastfeed as often as the baby wants and to give baby nutrient dense food.

- If not receiving other food or drinks yet, gradually start complementary feeding.
- Do not restrict food intake.
- Give nutrient dense food 3-5 times per day.
- Make food interesting and appealing.

For children 12 months to 2 years:

Counsel the caregiver to breastfeed as often as the baby wants and to give baby nutrient-dense food.

- If not receiving other foods and drinks yet, gradually start complementary feeding.
- Do not restrict food intake.
- Give nutrient dense food 5 times per day.
  Include a glass or two of milk everyday if this is available.
- Make food interesting and appealing.

For children 2 years and older:

- Do not restrict food intake.
- Give family foods at 3 meals a day. Also give nutrient dense food twice daily in between meals.
- Increase fluid intake particularly if there is fever of diarrhoea.
- Make food interesting and appealing.
4. If there is thrush or oral ulcers, teach the mother to treat it at home.

**How to treat thrush and oral ulcers**

- Wash hands before the procedure.
- Wipe child's mouth with clean soft cloth wrapped around the finger and wet with salt water.
- Paint child's mouth with half-strength gentian violet.
- Wash hands after the procedure.

5. If there are other medical problems, treat according to local protocol and if you have been trained to do so. If not, refer the child to a health facility for further management.

6. Follow up and weigh the child every 2 weeks.

- If child is gaining weight, continue to supervise the feeding until the child is well and has reached the ideal weight.
- If there is no improvement, find out if the family was able to follow your advice. If there are problems, find out ways to correct them.
Iron deficiency anaemia

Who are more commonly affected:

- pregnant women
- postpartum and breast-feeding women
- preterm infants
- children aged 6-24 months.
- children with protein-energy malnutrition
- children of families with no safe water source and no sanitary waste disposal.

Causes:

- not enough intake of foods rich in iron, folate and Vitamin C-rich foods.
- parasites such as intestinal worms or malaria
- bleeding

Effects:

- makes mothers prone to complications of pregnancy such as bleeding and infection
- babies born to anaemic mothers are more likely to be small, weak and prone to diseases

Signs and symptoms:

- pallor, more easily seen in the palms, conjunctivae, lips, and tongue
- weakness and getting tired easily
- dizziness and headache
- palpitations
- apathy, which is seen in children as non-participation in play and school activities
- in severe cases, oedema and breathlessness even on slight exertion
What to do:

1. **Assess food intake.**

   **Ask for:**
   
   - any feeding problem
   - frequency of feeding
   - food and drinks that are often taken in and food restrictions
   - intake of iron rich foods

2. **Assess physical well-being.**

   If there is severe palmar pallor or oedema of both feet, refer urgently to the hospital.
   
   - Do not let the patient walk or exert effort. He or she may have complications of the heart and any exertion will make the condition worse.

   If there is no severe palmar pallor or oedema of both feet, look after at home.

   Determine weight-for-age in children.
   
   - If low weight-for-age, also manage for protein-energy malnutrition.

3. **Counsel the child's caregiver or client:**

   **For infants up to 4 months:**

   Counsel the caregiver to breastfeed as often as the baby wants, day and night and not to give other foods or fluids.

   - If breastfeeding less than 8 times in 24 hours, increase frequency of breastfeeding.
   - If receiving other food or drinks, breastfeed more often, reduce other foods or drinks and use one cup and spoon, not a feeding bottle to feed the child.

   **For infants 4 up to 6 months:**

   Counsel the caregiver to breastfeed as often as the baby wants, day and night and to start complementary feeding when the baby is ready.

   - If breastfeeding less than 8 times in 24 hours, increase frequency of breastfeeding.
   - Start complementary feeding when the baby shows interest in semi-solid foods, or appears hungry after breastfeeding, or is not gaining enough weight. Use cup and spoon, not a feeding bottle when giving complementary food.
For infants 6 up to 12 months:

Counsel the caregiver to breastfeed as often as the baby wants and to give baby nutrient dense food.

- If not receiving other food or drinks yet, gradually start complementary feeding.
- Do not restrict food intake.
- Give mixes of complementary foods that are rich in iron and folate such as meat, liver, fish, beans, peas, nuts and dark green vegetables.
- Give fruit or fruit juice or fish or meat with green vegetables, peas, beans and nuts to enhance iron absorption.

For children 12 months to 2 years:

Counsel the caregiver to breastfeed as often as the baby wants and to give baby nutrient-dense food.

- If not receiving other foods and drinks yet, gradually start complementary feeding.
- Do not restrict food intake.
- Give nutrient dense food 5 times per day. Include food that are rich in iron and folate such as meat, liver, fish, beans, peas, nuts and dark green vegetables.
- Give fruit or fruit juice or fish or meat with green vegetables, peas, beans and nuts to enhance iron absorption.

For children 2 years and older:

- Do not restrict food intake.
- Give family foods at 3 meals each day. Also give nutrient dense food twice daily in between meals. Include foods that are rich in iron and folate such as meat, liver, fish, beans, peas, nuts and dark green vegetables.
- Give fruit or fruit juice or fish or meat with green vegetables, peas and nuts to enhance iron absorption.

For adolescents, adults, pregnant and breast-feeding women

Counsel the client.

- Eat iron and folate rich food such as meat, fish, beans, peas, nuts, and dark green vegetables in every meal.
- Drink fruit juice or any vitamin C rich food, fish or meat with green vegetables, peas, beans and nuts to enhance iron absorption.
- Do not drink tea, coffee or milk before, during and right after meals as this reduces iron absorption.
4. Give iron and folate supplements

In case of low birth weight babies (<2500 g at birth), start supplementation at 2 months.

The high requirement for iron in pregnancy is difficult to meet with most diets. Therefore, pregnant women should routinely receive iron supplements. Where the prevalence of anaemia in pregnant women is high (40% or more) supplementation should continue for 3 months after delivery.

<table>
<thead>
<tr>
<th>Iron Treatment Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Group</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>· 6-23 month</td>
</tr>
<tr>
<td>· 2-5 years</td>
</tr>
<tr>
<td>· 6-11 years</td>
</tr>
<tr>
<td>· Adolescents and adults including pregnant and post-partum women</td>
</tr>
</tbody>
</table>

Equivalent amount of elemental iron in commonly used iron compounds:

<table>
<thead>
<tr>
<th>Preparation</th>
<th>Iron compound mg per tablet</th>
<th>Elemental iron mg per tablet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ferrous fumarate</td>
<td>200</td>
<td>66</td>
</tr>
<tr>
<td>Ferrous gluconate</td>
<td>300</td>
<td>36</td>
</tr>
<tr>
<td>Ferrous sulfate (7H₂O)</td>
<td>300</td>
<td>60</td>
</tr>
<tr>
<td>Ferrous sulfate anhydrous</td>
<td>200</td>
<td>74</td>
</tr>
<tr>
<td>Ferrous sulfate (1H₂O)</td>
<td>200</td>
<td>60</td>
</tr>
</tbody>
</table>
5. In places where hookworm is endemic (prevalence is 20-30% or more), treat individuals who are older than 2 years with mebendazole 500 mg single dose, provided no antihelmintic has been taken in the previous months.

- If the patient is pregnant, postpone mebendazole until the 4th month of pregnancy.

6. Follow up after 2 weeks.

- If there is improvement, ask the caregiver or client to continue with the iron-rich diet and the iron supplement for 3 months.
- If there is no improvement, find out if the caregiver or client was able to follow your advice and comply with the treatment. If there are problems, find ways to correct them.

- Succeeding follow ups will depend upon the condition of your client. Those with poor nutrition compliance will need more follow ups.

---

**Prevent anaemia by preventing parasites**

- Wash hands thoroughly before eating meals, after using the toilet and after disposing of children's stools.
- Use a latrine.
- Protect against mosquito bites. Use a bed net.
- Destroy breeding places of mosquitos in areas with malaria.

After 3 months of treatment, pregnant women and infants should also receive preventive iron supplementation. (see pages 80-81)
Approximate Iron content of food portions

Average daily requirement of iron: children 6 months-10 years 10-17 mg, boys 10-18 years 17-27 mg, girls 10-18 years 17-36 mg, men 17 mg, women 36 mg during reproductive years and 14 mg for 60 years and above.
Vitamin A deficiency

Who are more commonly affected:

• children who have had measles or repeated infections
• children with protein-energy malnutrition

Causes:

• not enough intake of foods rich in vitamin A
• infections such as measles and repeated episodes of acute respiratory infections and diarrhoea

Effects:

• in severe cases, permanent blindness
• lowered resistance against infections

Signs and symptoms:

• nightblindness
• white, foamy spots on the white part (conjunctiva) of the eye
• clouding of the central dark part (cornea) of the eye
• ulceration of the eyes and blindness
• rough and dry skin
• frequently having diarrhoea or acute respiratory infections

Nightblindness
What to do:

1. Assess food intake.

Ask for:
- any feeding problem
- frequency of feeding
- food and drinks that are taken often and any food restrictions
- intake of Vitamin A rich foods

2. Assess physical well-being.

Determine weight-for-age.
- if low weight-for-age, also manage for protein-energy malnutrition

3. Give vitamin A by mouth as follows:

Vitamin A Treatment Schedule

<table>
<thead>
<tr>
<th>Age group</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;6 months</td>
<td>50,000 IU immediately</td>
</tr>
<tr>
<td></td>
<td>50,000 IU the following day</td>
</tr>
<tr>
<td></td>
<td>50,000 IU 2-4 weeks later</td>
</tr>
<tr>
<td>6-12 months</td>
<td>100,000 IU immediately</td>
</tr>
<tr>
<td></td>
<td>100,000 IU the following day</td>
</tr>
<tr>
<td></td>
<td>100,000 IU 2-4 weeks later</td>
</tr>
<tr>
<td>&gt;12 months</td>
<td>200,000 IU immediately</td>
</tr>
<tr>
<td></td>
<td>200,000 IU the following day</td>
</tr>
<tr>
<td></td>
<td>200,000 IU 2-4 weeks later</td>
</tr>
</tbody>
</table>

4. Counsel the child's caregiver or client:

For infants up to 4 months:

Counsel the caregiver to breastfeed as often as the baby wants, day and night and not to give other foods or fluids.
- If breastfeeding less than 8 times in 24 hours, increase frequency of breast-feeding.
- If receiving other food or drinks, breastfeed more often, reduce other foods or drinks and use one cup and spoon, not a feeding bottle to feed the child.

For infants 4 up to 6 months:

Counsel the caregiver to breastfeed as often as the baby wants, day and night and to start complementary feeding when the baby is ready.
- If breast-feeding less than 8 times in 24 hours, increase frequency of breast-feeding.
- Start complementary feeding when the baby shows interest in semi-solid foods, or appears hungry after breastfeeding, or is not gaining enough weight. Use cup and spoon, not a feeding bottle when giving complementary food.
For infants 6 up to 12 months:

Counsel the caregiver to breastfeed as often as the baby wants and to give the baby nutrient dense food.

- If not receiving other food or drinks yet, gradually start complementary feeding.
- Do not restrict food intake.
- Feed the child mixes of complimentary foods that include Vitamin A sources such as liver, spinach, sweet potato leaves, pumpkin, ripe papaya, ripe mango, red palm oil or fish oil.
- Add a little oil to green and yellow vegetables to enhance the absorption of Vitamin A.

For children 12 months to 2 years:

Counsel the caregiver to breastfeed as often as the baby wants and to give baby nutrient-dense food.

- If not receiving other foods and drinks yet, gradually start complementary feeding.
- Do not restrict food intake.
- Give nutrient dense food 5 times per day. Include food that are rich in Vitamin A such as liver, spinach, sweet potato leaves, pumpkin, ripe papaya, ripe mango, red palm oil or fish oil.
- Add a little oil to green and yellow vegetables to enhance the absorption of Vitamin A.

For children 2 years and older:

- Do not restrict food intake.
- Give family foods at 3 meals a day. Also give nutrient dense food twice daily in between meals. Include food that are rich in Vitamin A such as liver, spinach, sweet potato leaves, pumpkin, ripe papaya, ripe mango, red palm oil or fish oil.
- Add a little oil to green and yellow vegetables to enhance the absorption of Vitamin A.

5. Treat eye ulcer if present.

- Apply tetracycline ophthalmic ointment.
- Keep the eye covered with an eye shield to prevent the eye from being pressed or rubbed.
- Refer the patient to a physician.

When applying any medication to the eye, ensure that the preparation is for ophthalmic use and is not expired. Ointments or drops that are for cuts and sores on the skin and expired drugs may be harmful to the eyes.

6. Follow up after 2-4 weeks.

- Give the last vitamin A dose.
- Encourage intake of food rich in vitamin A.
**Approximate Vitamin A equivalent in food portions**

<table>
<thead>
<tr>
<th>Food Item</th>
<th>Vitamin A (µg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 small pc (30 g) liver, fried</td>
<td>9,000</td>
</tr>
<tr>
<td>1 pc (200 g) carrot, cooked</td>
<td>760</td>
</tr>
<tr>
<td>1/2 cup (45 g) spinach, cooked</td>
<td>280</td>
</tr>
<tr>
<td>1 pc (200 g) mango, ripe</td>
<td>200</td>
</tr>
<tr>
<td>1/2 cup (80 g) mussel, cooked</td>
<td>175</td>
</tr>
<tr>
<td>1/2 cup (100 g) mung beans, cooked</td>
<td>140</td>
</tr>
<tr>
<td>1/2 cup (50 g) chinese cabbage, cooked</td>
<td>140</td>
</tr>
<tr>
<td>1/2 cup (80 g) green peas, boiled</td>
<td>120</td>
</tr>
<tr>
<td>1 egg (50 g) fried</td>
<td>95</td>
</tr>
<tr>
<td>1 glass (250 ml) whole milk</td>
<td>90</td>
</tr>
<tr>
<td>1 pc (160 g) avocado</td>
<td>75</td>
</tr>
<tr>
<td>1 cob (128 g) corn, boiled</td>
<td>64</td>
</tr>
<tr>
<td>1 pc (50 g) tomato, raw</td>
<td>58</td>
</tr>
<tr>
<td>1/2 cup (80 g) broccoli, cooked</td>
<td>50</td>
</tr>
<tr>
<td>1 slice (135 g) fish, grilled</td>
<td>30</td>
</tr>
</tbody>
</table>

Average daily requirement of Vitamin A: children 6 months–10 years 350–400 µg, adolescents 500–600 µg, men 600 µg, women not pregnant 500 µg, pregnant 600 µg, lactating 850 µg and above 60 years 500 µg.
Iodine deficiency

Who are more commonly affected:
- pregnant women
- postpartum and breast-feeding women
- children whose mothers have iodine deficiency

Causes:
- in many places, soil, water and food that is grown from them do not contain enough iodine.
- not enough intake of foods rich in iodine

Effects:
- in pregnant women, it causes miscarriage, stillbirth and mentally retarded babies
- in children, it leads to impaired and retarded physical and mental development

Signs and symptoms:
- goitre
- poor school performance and retarded growth in children
- in severe cases, deaf-mutism and mental retardation

The use of iodized salt is the most effective means of preventing iodine deficiency disorders. Find ways to make iodized salt available in your community.
What to do:

1. Assess food intake.

Ask for:

- availability and intake of iodized salt
- how iodized salt is stored

2. Assess physical well-being.

Determine weight-for-age in children

- If low weight-for-age, also manage for protein-energy malnutrition.

3. Counsel the caregiver or the client.

- Use iodized salt for cooking and as table salt.
- Give the child, or consume more, iodine-rich foods such as sea water fishes and sea weeds.

4. In areas where iodine deficiency is common, ask the patient if they have experienced palpitations and check for tremors.

- If the client has tremors and is experiencing palpitations, DO NOT give iodine and refer the client to a physician.
- If the client does not have tremors and is not experiencing palpitations, give iodine as follows:

<table>
<thead>
<tr>
<th>Age group</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children</td>
<td>Iodized oil, 2 capsules (200 mg iodine per capsule), give only once</td>
</tr>
<tr>
<td>Adolescents, adults</td>
<td>Iodized oil, 3 capsules (200 mg iodine per capsule), give only once</td>
</tr>
<tr>
<td>and pregnant women</td>
<td></td>
</tr>
</tbody>
</table>

5. In areas where iodine deficiency is not a common problem, refer all patients with goitre to a physician for further assessment and treatment.
Rickets and osteomalacia

Who are more commonly affected:

- rickets is usually seen in infants and small children who are excessively protected from sunlight and fed very small amounts of calcium and vitamin D rich foods
- osteomalacia is commonly encountered in women who have had several pregnancies, who do not eat calcium and vitamin D rich foods and who do not have much exposure to sunlight

Causes:

- not enough exposure to sunlight
- not enough intake of foods rich in calcium and Vitamin D

Signs and symptoms:

In children

- swelling of the long ends of the bones, such as the wrist or the junction of the ribs and sternum, that produces a rosary bead-like appearance
- muscle weakness
- bow-legs or sometimes knock-knees
- deformities in the spine and/or pelvis

In adults

- pain in the bones, particularly in the pelvis, lower back and legs
- muscle weakness
- waddling gait
- pelvic deformities
- spontaneous fracture
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What to do:

1. **Assess food intake and exposure to sunlight.**

   **Ask for:**
   - any feeding problem
   - food and drinks that are taken often and food restrictions
   - extent of outdoor exposure during daytime

2. **Assess physical well-being.**

   Determine weight-for-age in children.
   - If low weight-for-age, also manage for protein-energy malnutrition.

3. **Counsel the caregiver or the client.**
   - Expose at least face and hands to the sun for a minimum of 50 minutes a day.
   - Give the child, or eat, vitamin D-rich foods such as fish, fish liver and oils, and eggs.
   - Give the child, or eat, calcium-rich foods such as milk, cheese, small fish and canned fish, vegetables, peas, beans and nuts.

In places where there is a cultural restriction on women and children going out in public, find acceptable ways of getting sun exposure in the home, such as in walled spaces where it is still possible to get sunlight.

*Bowing of the legs in a child with rickets.*
4. Give 2 glasses of milk per day for both children and adults.

5. Follow up the patient after 2 weeks.
   - If there is less pain and less weakness, ask the client to continue with your dietary advice.
   - If there is no improvement, refer to a health facility for further management.
## Approximate Calcium content of food portions

<table>
<thead>
<tr>
<th>Food Item</th>
<th>Calcium Content (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 cup (250 g) natural yoghurt</td>
<td>500 mg</td>
</tr>
<tr>
<td>1 glass (250 ml) whole milk</td>
<td>290 mg</td>
</tr>
<tr>
<td>1/2 cup (25 g) small fish, dried</td>
<td>200 mg</td>
</tr>
<tr>
<td>1 slice (20 g) cheddar cheese</td>
<td>150 mg</td>
</tr>
<tr>
<td>2 pieces (20 g) sardines, canned</td>
<td>100 mg</td>
</tr>
<tr>
<td>1 square (100 mg) bean curd</td>
<td>80 mg</td>
</tr>
<tr>
<td>1/2 cup (75 g) raisin</td>
<td>60 mg</td>
</tr>
<tr>
<td>1/2 cup (80 g) mussel, cooked, ripe</td>
<td>50 mg</td>
</tr>
<tr>
<td>1 pc (200 g) mango</td>
<td>40 mg</td>
</tr>
<tr>
<td>1/2 cup (100 g) mung beans, cooked</td>
<td>55 mg</td>
</tr>
<tr>
<td>1/2 cup (80 g) roasted peanuts</td>
<td>55 mg</td>
</tr>
<tr>
<td>1 pc (125 g) orange</td>
<td>55 mg</td>
</tr>
<tr>
<td>1 egg (50 g) fried</td>
<td>35 mg</td>
</tr>
<tr>
<td>1 patty (60 g) beef hamburger</td>
<td>25 mg</td>
</tr>
<tr>
<td>1/2 cup (70 g) cashew nuts, roasted</td>
<td>25 mg</td>
</tr>
</tbody>
</table>

Average daily requirement of Calcium: premature infants 300 mg from breastmilk or 400 mg from infant formulae, 7-12 months 400 mg, 1-3 yrs 500 mg, 4-6 yrs 600 mg, 7-9 yrs 700 mg, adolescents 1300 mg, males 19-65 yrs 1000 mg, females 19-50 yrs 1000 mg, females 51-65 yrs 1300 mg, males and females 65 yrs and older 1300 mg, pregnancy 1200 mg, lactation 1000 mg.
Obesity

Who are more commonly affected:

- bottle-fed infants
- children of obese parents
- individuals with sedentary lifestyles

Causes:

- too much intake of food
- diets that are high in fat and sugar
- insufficient physical activity

Effects:

- makes an individual prone to diabetes, hypertension, heart disease, osteoarthritis, respiratory problems, gall bladder disease

Signs and symptoms:

- large body size with excess fat

What to do:

1. Assess if overweight.

   Establish if a child or adult is overweight as described in the Annex of this booklet, by determining weight or height in children and Body Mass Index (BMI) in adolescents and adults (see Annex).

2. Assess food intake and physical activity.

Ask for:

- food and drinks usually eaten and frequency of food intake
- usual physical activity (what type of physical activity, for how long, how frequently)

Refer all obese patients with other problems such as chest pains, breathing difficulty or hypertension to a health facility for management.
3. Counsel the caregiver or the client.
   - If obese, lose weight by reducing food intake and increasing physical activity.
   - Eat a balanced diet, taking care to limit the intake of fat, sweet and sugary foods and drinks, and alcoholic drinks.
   - Eat small amounts regularly, about 5 times per day, and avoid binging or going for long periods without eating.

4. Refer patients with difficulty breathing, chest pains and other problems to a health facility for further assessment and treatment.

5. Follow up the client in one month.
   - If weight has been reduced, ask the client to continue with the dietary regimen and increased physical activity.
   - If there is no improvement, find out if the caregiver or client was able to follow your advice. If there are problems in compliance, find ways to correct them.
   - Succeeding follow-ups will depend upon the condition of your client. Those with poor compliance will need more follow-ups.

How to limit fat intake:
- Limit fried foods. Prepare food by steaming, poaching, grilling or baking instead.
- If you have to fry foods, use little oil and drain the fried food of excess oil.
- If meat and poultry are eaten often, trim visible fat and discard the skin of poultry.
- If possible, eat more legumes and fish instead of meat.
- Limit intake of sausages, hams, bacon and other preserved or canned meat.
- Use butter, margarine and mayonnaise sparingly.
- Use skimmed or semi-skimmed milk instead of full-fat milk.
- Remove oil floating on the surface of stews and soups.
- Avoid biscuits, pastries, cakes.

How to increase physical activity:
- Walk when feasible.
- Take part in sports or take regular exercise such as walking, aerobics or dancing.
- Do additional activities at home.
Diabetes mellitus

Who are more commonly affected:
- overweight and obese individuals
- children of diabetic parents

Causes:
- obesity
- heredity

Effects:
- makes an individual prone to heart disease, kidney and visual problems, and impotence in men

Signs and symptoms:
- excessive thirst and excessive urination
- eating much without gaining weight
- numbness of extremities
- delayed wound healing
- itchiness

What to do:

1. Assess degree of overweight
   Determine weight-for-height in children, and Body Mass Index (BMI) in adolescents and adults (see Annex).

2. Assess food intake.
   Ask for:
   - food and drinks that are usually taken and frequency of food intake.
   - usual physical activity (what type of physical activity, for how long, how frequently).

3. Counsel the caregiver or the client.
   If obese or overweight, give advice as for obese person (page 62, no.3).

Refer all diabetes mellitus suspects to a health facility for management.
4. If the patient has not seen a physician yet, refer them to a hospital for further assessment and treatment.

5. Follow up the client after 2 weeks.

- Find out if the client was able to follow your advice. If there are problems in compliance, find ways to correct them.
- Succeeding follow ups will depend upon the condition of your client. Those with poor compliance will need more follow ups.
- Encourage known diabetics to attend regular follow ups with their physician.

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**How to limit the intake of sweet and sugary foods and drinks:**

- Reduce the amount of sugar in drinks and desserts.
- Avoid soft drinks, colas and fruit-flavoured drinks.
- Replace sweet snacks with fruit, nuts, corn, plantain or similar foods.
- Limit the intake of ice cream, cakes, pies, cookies, candies and pastries.
- Limit the use of jams and jellies as spreads.
- Choose fresh over canned fruits and juices.
- Drink water instead of wine, soft drinks or sodas with meals and snacks.
Diseases of the heart and blood vessels

Who are more commonly affected:
- individuals whose diets have high fat content
- obese individuals
- children of parents who have hyperlipidemias

Causes:
- intake of too much fat, particularly animal fat
- heredity

Effects:
- makes individuals prone to hypertension, heart attacks, stroke and premature death

Signs and symptoms:
- usually asymptomatic in early stages
- obesity
- high cholesterol and fat levels in the blood
- hypertension
- chest pains if heart is affected
- paralysis of the face, limbs or half the body if there was a stroke

What to do:

1. Assess food intake.

Ask for:
- food and drinks that are taken often and frequency of food intake
- physical activity

2. Assess physical well-being.

Determine body mass index and check blood pressure.

3. Counsel the client.

- If obese, loose weight by reducing food intake and increasing physical activity.
- Eat a balanced diet, taking care to limit fat intake particularly animal fats, and intake of salty, sweet and sugary food and drinks.
- Eat more vegetables, fruit, unrefined cereal products and legumes.
- Engage in moderate physical activity.
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4. If the patient has not seen a physician yet, refer them to a health facility for further assessment and treatment.

How to limit salt intake:

- Gradually cut down on salt for cooking.
- Cut down on monosodium glutamate (MSG).
- In foods cooked with both sugar and salt, cut down on sugar as it masks the taste of salt.
- Reduce the intake of highly salted foods such as canned meat, cured meat and fish, cheese, salted eggs and preserved vegetables, cheese and salted snacks.
- Limit the use of table salt, fish, chili and soy sauce, tomato and other canned sauces.
- Choose fresh instead of preserved foods.

If you suspect a client to have a disease of the heart and blood vessels, refer to a health facility where it can be managed.
Individuals and families with nutritional and related problems need to be followed up to encourage them to adopt good nutrition practices.
Foods and nutrients

• Nutrients in food
• Rice, bread, other grains and starchy food
• Meat, fish, milk, eggs and legumes
• Fruits and vegetables
• Fats and oils
• Drinks and beverages
• Chips, crisps, sweet and sugary food
• Iron supplementation
• Vitamin A supplementation
• Iodine supplementation
Nutrients in Food

Nutrients are the elements found in food that are useful to the body.

Foods vary according to the kind and amount of nutrients. Particular food groups provide large amounts of particular nutrients.

The nutrients in food are:

- Carbohydrates
- Protein
- Fat
- Vitamins
- Minerals
- Fibre

Carbohydrates

Carbohydrates are the main fuel of the body. They provide most of the energy needed by the body to keep warm, move, breathe and perform other bodily functions.

Grains and starchy foods are very good sources of carbohydrate. Fruits also provide carbohydrate in the form of sugar.

Sweet foods and drinks contain sugar but almost no other nutrients.
**Protein**

Protein is the building material for all body parts, such as muscle, skin, hair, nails and body fluids.

It is important for growth, repair of worn-out tissues, replacement of used-up body fluids and resistance against infections.

Protein is largely derived from cereals, meat, fish, milk, eggs and legumes.

**Fat**

Fat is a concentrated source of energy. It helps provide the energy needed by the body.

Fat provides the building materials for some body parts, such as the brain, nerves and hormones. It also facilitates the absorption of some vitamins.

Meat, some fish, seeds and nuts all contain fat. Fat from fish and plant sources is considered a better kind of fat than fat from meat. Diets high in fat are more likely to cause obesity.
Vitamins

There are different kinds of vitamins and each one has a specific use, but generally, vitamins help regulate body functions and maintain health.

Vitamins help the body make use of carbohydrate, protein and fat, and build cells. They also help protect the body against infections.

Most vitamins can be derived from liver, fruits, vegetables, legumes and grains.

Minerals

Minerals form part of the structure of body tissues, such as bones, teeth and nails, blood, nerves, and muscles.

Minerals are vital to physical and mental development. They also help protect the body against infections.

Meat, fish, milk, cheese, tofu, green leafy vegetables and legumes provide most of the minerals needed by the body.
Fibre

Dietary fibre is not usually absorbed by the body, but it helps intestinal and bowel function.

Dietary fibre makes food bulky. This makes food stay longer in the stomach, and so it takes longer before an individual feels hungry again. This may help prevent obesity.

Dietary fibre makes stools soft and bulky thus preventing constipation.

Dietary fibre also has protective functions. It can adsorb harmful substances to some extent and is helpful in the prevention of some intestinal cancers.

Vegetables, unrefined cereals, tubers, legumes, and fruits are good sources of fibre.
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Rice, Bread, other Grains and Starchy Food

• Very good sources of carbohydrate.
• Most provide significant amounts of protein, B vitamins and fibre.
• Most of the B vitamins and some protein in cereals are lost during heavy milling.
• Unpolished rice and whole grain cereals retain most of their B vitamins, proteins and fibre. They have a darker colour.
• Diets high in grains and starchy food are more likely to prevent obesity.
• Rice, wheat, oats, corn, and other cereals should be eaten preferably only partly refined.

Highly processed grains and starchy foods promote tooth decay, particularly when oral hygiene is poor.
Meat, Fish, Milk, Eggs, Liver and Legumes

• Very good sources of protein.
• Main source of minerals and provide significant amounts of fat except for most peas and beans.
• Beans require thorough cooking to be digested.
• Liver is an excellent source of iron and many vitamins.
• Breastmilk is the best food for infants from birth up to 6 months, it contains all the nutrients needed for the infant’s growth and development.
• Infant formula milk approximates the nutrient content of breastmilk but does not provide antibodies and is not as easily digested and absorbed as breastmilk.
• Skimmed and condensed milk are not good for babies; skimmed milk is milk from which most fat has been removed and condensed milk contain a lot of sugar.
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Fruits and Vegetables

- Very good sources of vitamins, minerals and fibre.
- Fruits provide carbohydrates which are very easily absorbed.
- Should be washed well to remove germs and other harmful substances.
- Should be washed before cutting up and not soaked in water. Soaking causes nutrient loss.
- Sun drying and prolonged cooking destroys some vitamins found in fruits and vegetables.

Should be consumed as fresh as possible, prolonged storage causes loss of some vitamin C and folate.
Fats and Oils

- Provide energy.
- Facilitate the absorption of some vitamins.
- Butter is fat from milk. Margarine is from vegetable oils that have undergone changes in fat components that make it less healthy.
- Fat from vegetables and seed oils are healthier than lard, meat drippings and other fats from animals except fish.
- Coconut oil should be used in moderate amounts as it contains less healthy fat.

Diets high in fats and oils may lead to obesity and diseases of the heart and blood vessels.
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Drinks and Beverages

- Provide water.
- Fresh fruit juices and shakes contain the same nutrients as the fruit from which they are made, except for the dietary fibre.
- Juice drinks are made to taste like real fruit juice but have too much sugar and contains artificial flavours.
- Coffee, tea and cocoa drinks contain small amounts of caffeine, which is a stimulant, and no other significant nutrients. Green tea, however, contains substances that are considered healthy.
- Tea and coffee reduce the absorption of iron if taken during and right after meals.
- Beer, wine, spirits and local brews contain varying amounts of alcohol.
- Taking too many alcoholic drinks may lead to vitamin deficiencies as alcohol uses up some vitamins.
- Taking too many alcoholic drinks has been shown to contribute to cancer of the gastrointestinal tract and liver disease.

Alcohol intake during pregnancy can cause birth defects.
• Provide mainly carbohydrate and fat.

• Chips are usually made from milled cereals, thinly sliced tubers and dehydrated fruits and vegetables; in the process vitamins, minerals and fibre are lost.

• Sugar, oil, salt, seasoning and preservatives are usually added or contained in high amounts.

• These foods should only be eaten seldom and in small quantities.

• Sugar can be easily taken in large amounts because of its sweet taste and less bulk.

• Eating too many chips, crisps, sweet and sugary foods may displace the intake of food with more variety of nutrients, and tends to increase energy intake. It thus contribute to obesity and high levels of fat in the blood.

Sugar promotes tooth decay, particularly when oral hygiene is poor.
Iron Supplementation

Iron and folate deficiency are the main causes of anaemia.

Anaemia causes lowered resistance against infections and decreased capacity to do work. In children, it causes poor mental development and in pregnant women, it increases the likelihood of low birth weight babies and postpartum bleeding and infections.

In areas where anaemia is a problem, iron supplementation helps reduce infant and maternal deaths.

Malaria and other parasitic infestations also cause anaemia. Where intestinal parasitic infestation is common, deworming may be done in addition to iron supplementation in school children and pregnant women during the third trimester of pregnancy. Where malaria is common, malaria prophylaxis may be given with iron supplementation to pregnant women.

To enhance iron absorption tea and coffee should be taken at least two hours before or after meals as they reduce the absorption of iron. Fruits, fish or meat should be eaten with iron-rich plant food such as legumes and green vegetables, as this enhances iron absorption.

Taking iron supplements may cause side effects like stomach pain and nausea. This can be avoided by taking tablets before going to bed or with meals although this reduces iron absorption. Black stools will also be observed and there may be changes in bowel habits, like constipation. This is not dangerous and should not be a cause for worry.

Priority population groups for supplementation:

Iron supplementation is recommended for pregnant women.

In areas where anaemia is very common, supplementation among pregnant women should continue into the postpartum period and children 6-24 months of age should also be covered.

Where iron deficiency is very common and resources are available iron supplementation will also benefit women of reproductive age, other children and adolescents.

Give iron supplement to augment food intake and not as a replacement for a varied intake of food.
Iron supplementation: target groups, recommended dose and important consideration

<table>
<thead>
<tr>
<th>TARGET GROUP</th>
<th>DOSE</th>
<th>IMPORTANT CONSIDERATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infants 6-24</td>
<td>12.5 mg iron + 50 µg folic acid daily</td>
<td>Supplement may be given to low birth weight babies, less than 2500 g at 2 months, and extended up to 24 months as they are more at risk for deficiency.</td>
</tr>
<tr>
<td>Children 2-5 years</td>
<td>20-30 mg iron daily</td>
<td>Where the prevalence of anaemia is 40% or more, supplementation may be extended up to 24 months.</td>
</tr>
<tr>
<td>Children 6-11 years</td>
<td>30-60 mg iron daily</td>
<td>If resources are limited, consider this group as second priority.</td>
</tr>
<tr>
<td>Adolescents and adults</td>
<td>60 mg iron daily</td>
<td>If resources are limited, consider this group as second priority.</td>
</tr>
<tr>
<td>Pregnant women</td>
<td>60 mg iron + 400 µg folic acid daily for 6 months in pregnancy</td>
<td>Women of reproductive age should also be given 400 µg folic acid with the iron supplement. This will help prevent birth defects in those who become pregnant.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If resources are limited, consider this group as second priority.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If 6 months supplementation cannot be achieved in pregnancy, extend to postpartum period or increase the dose to 120 mg iron in pregnancy.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Where the prevalence of anaemia is 40% or more, supplementation may be extended up to 3 months postpartum.</td>
</tr>
</tbody>
</table>

Guidelines on Iron supplementation vary between countries. Follow the established protocol in your area.
Vitamin A Supplementation

Vitamin A deficiency (VAD) causes nightblindness, eye lesions and, in severe cases, permanent blindness. It also makes individuals more prone to infections.

Vitamin A supplementation is an effective, inexpensive and easy way of preventing blindness and improving children's resistance to childhood infections.

In areas where vitamin A deficiency is widespread, supplementation among children 6-72 months is expected to lower child mortality by 23%. If implemented as part of measles case management, Vitamin A supplementation can also reduce deaths from measles by more than half.

However, in populations where the intake of Vitamin A in the diet is sufficient, no additional benefit may be gained from Vitamin A supplementation.

During pregnancy, the mother may be given vitamin A supplementation at doses NOT to exceed 25,000 IU per week as higher doses may be harmful to the baby. Higher doses may only be given to the mother right after delivery or within 6 weeks postpartum provided the mother is not pregnant again.

In many places, mothers and children are not able to go to health centres for regular visits. It may be helpful to make use of immunization services, postnatal care contacts and other similar events to give Vitamin A supplements.

Priority population groups for supplementation:

In areas where infant and young child mortality is high and VAD is common, supplementation is highly recommended.

Children and postpartum women should be the main priority for vitamin A supplementation.

Vitamin A supplementation to the mother around the time of delivery increases the Vitamin A content of breastmilk.

Be careful when giving vitamin A. Avoid overdosage. Give according to established protocol.
### Vitamin A supplementation: Target groups, recommended dose and important considerations:

<table>
<thead>
<tr>
<th>TARGET GROUP</th>
<th>DOSE</th>
<th>IMPORTANT CONSIDERATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infants 2-5 months who are NOT breast-fed and NOT receiving Vitamin A fortified breast-milk substitute</td>
<td>50 000 IU, single dose at 2 months or any time within 2-5 months</td>
<td>Breastmilk is a sufficient source of Vitamin A at 0-6 months, there is no need to give Vitamin A supplement to breast-fed babies at this age.</td>
</tr>
<tr>
<td>Infants 6-11 months</td>
<td>100 000 IU, single dose at 6 months interval</td>
<td>Avoid multiple dosing, record the Vitamin A supplement given on the child health card for routine health service visits.</td>
</tr>
<tr>
<td>Children 1-5 years</td>
<td>200 000 IU, single dose at 6 months interval</td>
<td>Avoid multiple dosing, record the Vitamin A supplement given on the child health card for routine health service visits.</td>
</tr>
<tr>
<td>Pregnant women</td>
<td>10 000 IU daily or 25,000 IU once a week, anytime between the third and ninth month of pregnancy</td>
<td>Do not give during the first three months of pregnancy and in single weekly doses exceeding 25,000 IU per week. These may cause congenital abnormalities in the baby.</td>
</tr>
<tr>
<td>Postpartum women</td>
<td>200 000 IU, immediately postpartum or within the first month after delivery</td>
<td>Vitamin A may also be given any time within 6 months postpartum provided the woman is exclusively breast-feeding and menses have not returned yet. If woman is NOT breast-feeding, Vitamin A may only be given within 28 days postpartum or upon return of menses to ensure that the woman is not pregnant.</td>
</tr>
</tbody>
</table>
Iodine Supplementation

Iodine deficiency is the most common cause of preventable mental retardation.

It also causes endemic goitre, cretinism and retardation of physical development in children.

The use of iodized salt is the best way to prevent and control iodine deficiency disorders. Iodine supplementation is only recommended in the following situations:

- where the prevalence of iodine deficiency disorders is classified as moderate or severe;
- cretinism and neonatal hypothyroidism are present; and
- universal salt iodization programmes will not reach women of reproductive age within 1-2 years.

When iodine status of population improves, iodine deficiency disorders are prevented, foetal and perinatal deaths decrease, birth weight and the intelligence quotient of the population increases.

Priority population groups for supplementation:

Pregnant women, infants and children are the priority groups for iodine supplementation.

Benefit will also be gained if women of reproductive age are given iodine supplements.

Iodine supplementation in women of reproductive age will help prevent cretinism, intrauterine growth retardation and mental retardation in babies of those who become pregnant.
## Iodine supplementation: Target groups and recommended dose

<table>
<thead>
<tr>
<th>TARGET GROUP</th>
<th>DOSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infants 0-1 year old</td>
<td>Iodized oil, 1 capsule (200 mg iodine per capsule), single dose</td>
</tr>
<tr>
<td>Children 1 year and older</td>
<td>Iodized oil, 2 capsules (200 mg iodine per capsule), single dose</td>
</tr>
<tr>
<td>Non-pregnant fertile women</td>
<td>Iodized oil, 2 capsules (200 mg iodine per capsule), single dose</td>
</tr>
<tr>
<td>Pregnant women</td>
<td>Iodized oil, 3 capsules (200 mg iodine per capsule), single dose, any time during pregnancy</td>
</tr>
<tr>
<td>Postpartum women who did not get iodine supplement during pregnancy</td>
<td>Iodized oil, 3 capsules (200 mg iodine per capsule), single dose, early after delivery</td>
</tr>
</tbody>
</table>

A single dose of oral iodized oil supplement will prevent iodine deficiency for 1-2 years.

Guidelines on Iodine supplementation vary between countries. Follow the established protocol in your area.
References


