

Living well with HIV/AIDS

A manual on nutritional care
and support for people
living with HIV/AIDS

WHO

World Health Organization

FAO

Food and Agriculture Organization
of the United Nations

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Preface

The links between nutrition and infection are well known. Good nutrition is essential for achieving and preserving health while helping the body to protect itself from infections. Consumption of a well-balanced diet is essential to make up for the loss of energy and nutrients caused by infections. Good nutrition also helps to promote a sense of well-being and to strengthen the resolve of the sick to get better. The nutritional advice in this manual can help sick people, including those living with HIV/AIDS, to feel better.

Few crises have affected human health and threatened national, social and economic progress in quite the way that HIV/AIDS has. The pandemic has had a devastating impact on household food security and nutrition through its effects on the availability and stability of food, and access to food and its use for good nutrition. Agricultural production and employment are severely affected and health and social services put under great strain. Families lose their ability to work and to produce. With worsening poverty, families also lose their ability to acquire food and to meet other basic needs. Time and household resources are consumed in an effort to care for sick family members, partners may become infected, families may be discriminated against and become socially marginalized, children may be orphaned and the elderly left to cope as best they can.

Meeting immediate food, nutrition and other basic needs is essential if HIV/AIDS-affected households are to live with dignity and security. Providing nutritional care and support for people living with HIV/AIDS is an important part of caring at all stages of the disease. This manual provides home care agents and local service providers with practical recommendations for a healthy and well-balanced diet for people living with HIV/AIDS. It deals with common complications that people living with HIV/AIDS experience at different stages

of infection and helps provide local solutions that emphasize using local food resources and home-based care and support.

The manual was developed following an extensive review of existing guides from both developed and developing countries. Though it is applicable to many real life situations, users may find that they can further improve its usefulness if they adapt sections to local circumstances. The manual was prepared by the Nutrition Programmes Service of the Food and Nutrition Division (ESN) in collaboration with the WHO Department for Health and Development (NHD), Geneva and is jointly published by FAO and WHO. Technical comments have been received from FAO's Development and Population Service and the Communication, Education and Training Service. Special thanks are due to Maren Lieberum for preparing the manual, Marlou Biljsma, Yvonne Foreseen, Boitshepo D. Giyose, John Hubley, Dorcas Lwanga and Micheline Nturu for their valuable contributions; also to Jethro Dennis for preparing the drawings.

We hope that local service providers, NGOs and family care givers will find the manual useful in providing effective and innovative nutritional care and support to people living with HIV/AIDS and that it will assist all concerned in improving the nutrition and quality of their lives.

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Introduction

NUTRITION FOR PEOPLE LIVING WITH HIV/AIDS: A VITAL AND OFTEN NEGLECTED COMPONENT OF HOME-BASED CARE

Malnutrition¹ is a serious danger for people living with HIV/AIDS. Even at the early stages of HIV infection when no symptoms are apparent, HIV makes demands on the body's nutritional status. The risk of malnutrition increases significantly during the course of the infection.

Good nutrition cannot cure AIDS or prevent HIV infection, but it can help to maintain and improve the nutritional status of a person with HIV/AIDS and delay the progression from HIV to AIDS-related diseases. It can therefore improve the quality of life of people living with HIV/AIDS. Nutritional care and support are important from the early stages of the infection to prevent the development of nutritional deficiencies. A healthy and balanced diet will help to maintain body weight and fitness. Eating well helps to maintain and improve the performance of the immune system – the body's protection against infection – and therefore helps a person to stay healthy.

Many of the conditions associated with HIV/AIDS affect food intake, digestion and absorption, while others influence the functions of the body. Many of the symptoms of these conditions (e.g. diarrhoea, weight loss, sore mouth and throat, nausea or vomiting) are manageable with appropriate nutrition. Good nutrition will complement and reinforce the effect of any medication taken.

THE PURPOSE OF THIS MANUAL

The manual provides practical recommendations for a healthy and balanced diet for people living with HIV/AIDS in countries or areas with a low resource base. It aims at improving nutrition in a home-based setting. It is also applicable

¹ Malnutrition in this publication refers to:
a) lack of food energy (undernutrition); and b) lack of micronutrients.

for people with HIV/AIDS in hospitals and other institutional settings, including hospices.

The food requirements of people with HIV/AIDS are described and recommendations given on foods and eating habits to meet these requirements. The manual also explains how to address the nutritional aspects of HIV-related conditions. Practical recipes using locally available foods are suggested as well as some simple home remedies for easing some of the problems people with HIV/AIDS may experience.

USERS OF THE MANUAL

The manual consists of:

1) Guidelines with accompanying information and explanations (the main text) intended for use by:

- Health service providers and other extension workers as well as those involved at the national and community level in the many different aspects of counselling and home-based care (see [Figure 1](#)).
- Community-based organizations working with people with HIV/AIDS who need information for programming and counselling purposes.
- Planners in the health, social and nutrition services so they can develop national or local guidelines for nutritional care and support for people living with HIV/AIDS.
- International agencies that support national and community-based support programmes for people with HIV/AIDS.

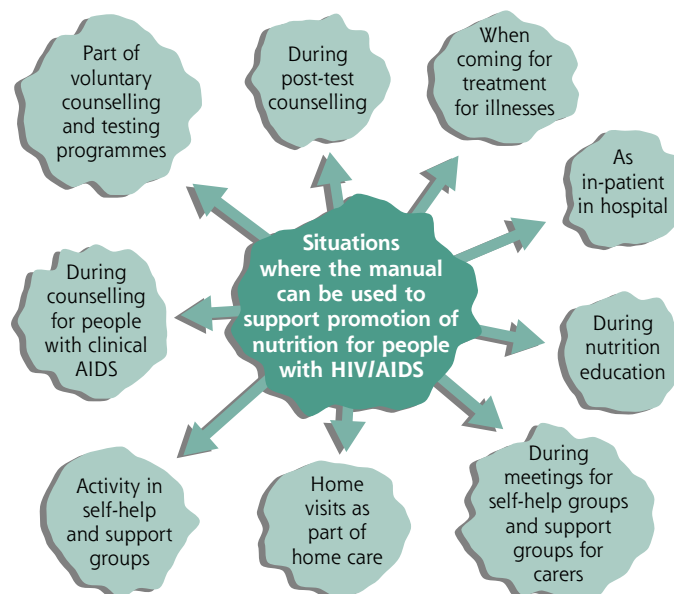
2) Summary sheets that can be used as handouts, listing the main points for each key topic.

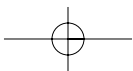
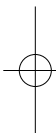
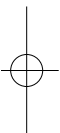
The summary sheets and leaflets are specifically for use by people who are living with HIV/AIDS or who are caring for a person living with HIV/AIDS, who want to be better informed.

The Annexes contain:

- Further technical information
- Suggested recipes for home treatments and foods for different conditions
- Forms to monitor food intake and weight
- Sources of literature and information on institutions providing support for people living with HIV/AIDS

FIGURE 1 Entry points for raising nutritional issues and providing care and support for people living with HIV/AIDS





Adapting and using the manual

ADAPTING THE MANUAL FOR LOCAL USE

Although the recommendations in this manual are generic, the general principles will be relevant for most people living with HIV/AIDS. However, specific nutrition recommendations should be adapted to the needs of individuals and the local community.

In developing these recommendations, research findings and experience gained in a wide range of settings have been incorporated. Nevertheless, many of the countries and organizations using this manual will have their own experience and knowledge on caring for people living with HIV/AIDS. It is important that this local knowledge and experience be incorporated in the recommendations of the manual.

Adapting it for local use provides an opportunity for local organizations to participate, creating a sense of ownership whereby they are more likely to use the manual.

Adaptation may need to take place at different levels. Countries and/or organizations may wish to develop the manual for national use or make further adaptations to meet regional and more local levels.

CHANGES NEEDED

The changes needed to adapt the manual to the requirements of a particular country or region will involve:

- Changes in foods and recipes to suit the local availability of food and community tastes and preferences in country, regional, urban or rural

settings. This may mean omitting some foods from the manual and adding others of equivalent nutritional value.

- Inclusion of recipes for local dishes, including locally available foods, ensuring that the recipes are compatible with healthy eating guidelines. Suggestions may be made to combine foods with local dishes to ensure a balanced meal. Recipes or cooking methods may be adapted to suit specific HIV-related complications (see Annex 1 for recipes).
- Adaptation of recommendations to local realities, e.g. types of protected water systems, availability of refrigerators, local cooking procedures and measures of weight and volume.
- Selection of those parts of the manual that are relevant to the local situation, e.g. nutritional problems, the pattern of symptoms, availability of treatments used for HIV/AIDS management, drug treatments and local priorities for the care of people with HIV/AIDS.
- Modifications to include experiences gained locally in the nutritional support of people with HIV/AIDS.
- Adaptation to the educational level and cultural background of the users. The adapted manual can be tested on local users to ascertain whether the words and pictures are understood and acceptable. Any words and pictures that are poorly understood should be replaced and the final versions tested again.

SOME SUGGESTIONS ON HOW TO ADAPT THE MANUAL

The manual can be adapted in different ways depending on its intended use and the resources and people available. One approach would be to form a technical working group of people (“stakeholders”) from key government positions and non-governmental organizations (NGOs) to promote nutrition for people with HIV/AIDS. This working group could meet on a regular basis, review the manual, make suggestions for content and then produce the local version. Suggestions for the role of this working group are given in the box on p. 7.

Another approach would be to start with a workshop at the national level that would seek to involve all the main stakeholders such as health and extension workers and other service providers, experts on HIV/AIDS and nutrition, organizations working with people living with HIV/AIDS and people living with HIV/AIDS themselves. The objectives of the workshop would be to identify the kind of manual required and develop a workplan and a budget for producing a locally relevant version. From this participatory

process would emerge a technical working group to carry out the detailed work of implementing the recommendations and producing the revised manual. A suggested checklist for a workshop is given below.

Role of a technical working group

- Plan how to mobilize resources and initiate the necessary steps.
- Identify and review existing nutrition education and home-based care materials/services. As nutritional advice for people living with HIV/AIDS is no different from general nutritional advice in principle, some existing material can be used for the development of the guidelines.
- Identify information gaps in existing material and additional information needed; develop an information collection strategy and define responsibilities.
- Identify what needs to be developed.
- Identify resource materials, including existing generic guidelines and the parts that can be adapted.
- Put together recipes for food, herbal drinks and home cures and test them on volunteers for acceptability.
- Seek local experience on nutrition and AIDS, identify additional recipes and assess them for suitability for inclusion in the manual.
- Draft the guidelines (by drafting committee).
- Share the guidelines with all stakeholders for comments.
- Incorporate the comments.
- Pre-test guidelines on local field staff to check that they are easy to read, clear and acceptable.
- Finalize nutritional guidelines.

Suggested checklist for a national workshop

- Hold a workshop with all stakeholders to:
 - build a common vision on content of the guidelines, the kind of materials required and target groups;
 - refine and agree on the process of the development of the guidelines;
 - form a technical working group to work on the guidelines;
 - develop a workplan and a budget for the production of national guidelines on nutritional care and support for people living with HIV/AIDS;
 - mobilize resources.

DISSEMINATION OF THE GUIDELINES

Once the guidelines have been finalized, a programme for dissemination at national, district and local levels needs to be developed. This programme would include:

- distribution of the guidelines to government, international and national organizations;
- training workshops for field staff on the use of the guidelines in nutrition work with people with HIV/AIDS;
- development of educational aids such as brochures, posters, leaflets, fact sheets, radio programmes, TV spots, training materials, issue briefs, music and theatre activities and nutrition ambassadors.

MONITORING AND EVALUATION

It is important to monitor the implementation of the guidelines and review them in the light of local experience. This could involve:

- monitoring the number of people trained and the number of copies of guidelines distributed;
- a follow-up meeting with key persons in agencies involved in the development of the local guidelines to assess the experience within their agency of the use of the manual;
- follow-up and assessment of the use made of the manual, problems experienced and lessons learned by relevant field staff;
- inviting comments from self-help groups on the guidelines;
- interviews with people living with HIV/AIDS who have received nutrition education as part of the programme to assess the extent to which they have been able to follow the guidelines and suggest modifications.

The benefits of good nutrition for people and families living with HIV/AIDS

WE EAT FOR MANY REASONS

Food is important for everyone. Familiar foods make us feel safe and secure. Food reminds us of our childhood, home country and culture. We celebrate events by eating special foods in the company of people who are important to us. When we eat well we feel well.

Food provides the energy and nutrients that our bodies need to:

- stay alive, move and work;
- build new cells and tissues for growth, maintenance and repair;
- resist and fight infections.

When the body does not get enough food, it becomes weak and cannot develop or function properly. Healthy and balanced nutrition means eating the right type of foods in the right quantities to keep healthy, keep fit and enjoy ourselves. The basics of good nutrition are explained in the next chapter.

HIV/AIDS AND NUTRITION

The HIV virus attacks the immune system. In the early stages of infection a person shows no visible signs of illness but later many of the signs of AIDS will become apparent, including weight loss, fever, diarrhoea and opportunistic infections (such as sore throat and tuberculosis).

Good nutritional status is very important from the time a person is infected with HIV. Nutrition education at this early stage gives the person a chance to build up healthy eating habits and to take action to improve food security in the home, particularly as regards the cultivation, storage and cooking of food.

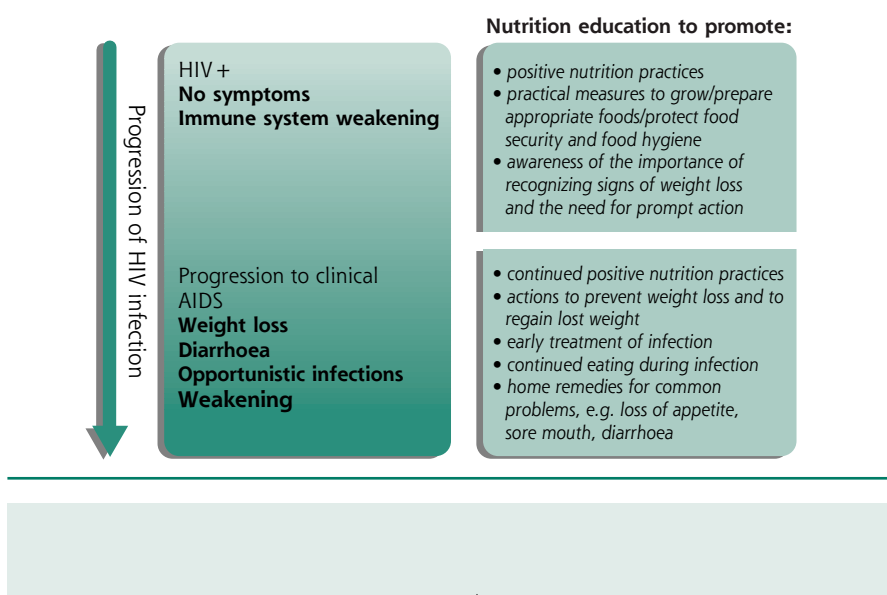
Good nutrition is also vital to help maintain the health and quality of life of the person suffering from AIDS. Infection with HIV damages the immune system, which leads to other infections such as fever and diarrhoea. These infections can lower food intake because they both reduce appetite and interfere with the body's ability to absorb food. As a result, the person becomes malnourished, loses weight and is weakened.

One of the possible signs of the onset of clinical AIDS is a weight loss of about 6-7 kg for an average adult. When a person is already underweight, a further weight loss can have serious effects. A healthy and balanced diet, early treatment of infection and proper nutritional recovery after infection can reduce this weight loss and reduce the impact of future infection.

A person may be receiving treatment for the opportunistic infections and also perhaps combination therapy for HIV; these treatments and medicines may influence eating and nutrition. Good nutrition will reinforce the effect of the drugs taken.

When nutritional needs are not met, recovery from an illness will take longer. During this period the family will have the burden of caring for the sick person, paying for health care and absorbing the loss of earnings while the ill person is unable to work. In addition, good nutrition can help to extend the period when the person with HIV/AIDS is well and working.

FIGURE 2 The role of nutrition education as HIV infection develops



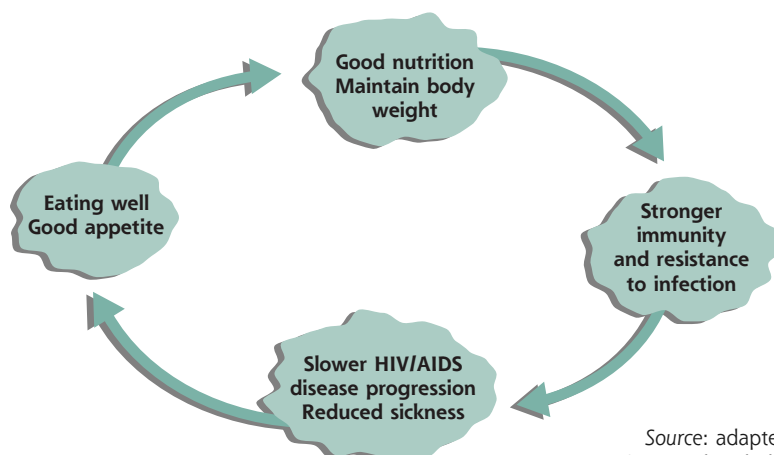
HEALTHY AND BALANCED NUTRITION IS IMPORTANT FOR PEOPLE LIVING WITH HIV/AIDS

Nutritional care and support promote well-being, self-esteem and a positive attitude to life for people and their families living with HIV/AIDS.

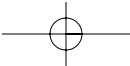
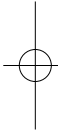
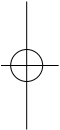
Healthy and balanced nutrition should be one of the goals of counselling and care for people at all stages of HIV infection. An effective programme of nutritional care and support will improve the quality of life of people living with HIV/AIDS, by:

- maintaining body weight and strength;
- replacing lost vitamins and minerals;
- improving the function of the immune system and the body's ability to fight infection;
- extending the period from infection to the development of the AIDS disease;
- improving response to treatment; reducing time and money spent on health care;
- keeping HIV-infected people active, allowing them to take care of themselves, their family and children; and
- keeping HIV-infected people productive, able to work, grow food and contribute to the income of their families.

FIGURE 3 Relationship between good nutrition and HIV/AIDS



Source: adapted from
Piwoz and Prebel, 2000.



three

Healthy and balanced nutrition is important for everyone

OUR BODIES NEED FOOD

Food is essential for our bodies to:

- develop, replace and repair cells and tissues;
- produce energy to keep warm, move and work;
- carry out chemical processes such as the digestion of food;
- protect against, resist and fight infection and recover from sickness.

Food is made up of nutrients. Micronutrients such as vitamins and minerals are needed only in small amounts. Macronutrients such as carbohydrates, protein and fat are needed in larger amounts. The body cannot function properly if one or more nutrients are missing. A healthy and balanced diet provides foods in the right amounts and combinations that are safe and free from disease and harmful substances.

Prevention is better than cure. The earlier a person starts to eat a healthy and balanced diet, the more he or she will stay healthy. Once weight has been lost it may be difficult to regain it because of tiredness and lack of appetite.

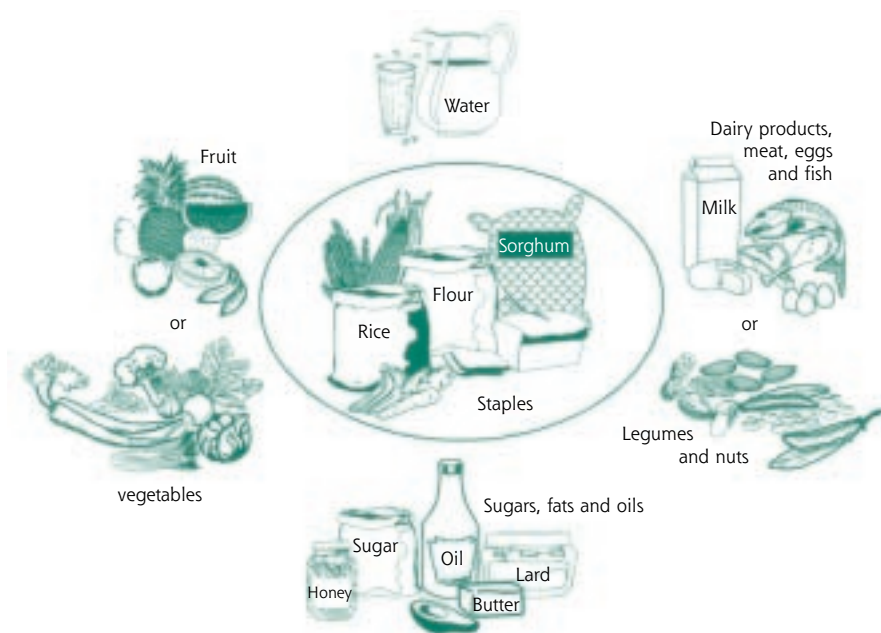
The section below contains some guidelines on healthy and balanced nutrition. These apply to everyone – whether they are infected with HIV or not.

Healthy and balanced nutrition is important for everyone

LIVING WELL WITH HIV/AIDS – a manual on nutritional care and support for people living with HIV/AIDS

HEALTHY AND BALANCED NUTRITION

Enjoy a variety of foods



Eating well means eating a variety of foods. No single food contains all the nutrients that our bodies need, except for breastmilk for babies up to the age of six months. Eating a variety of different foods will supply the nutrients that are essential for our bodies. By taking care to choose foods that are in season and locally available, eating can be enjoyable, healthy and affordable.

Eat staple foods with every meal

Staple foods should make up the largest part of a meal. These foods are relatively cheap and supply a good amount of energy and some protein. Staples include cereals (such as rice, maize, millet, sorghum, wheat and barley), starchy roots (such as potatoes, sweet potatoes, cassava and yams) and starchy fruit (such as plantains).

However, staple foods are not enough to provide all the nutrients the body needs. Other foods must be eaten to provide additional energy, proteins and micronutrients.

Eat legumes if possible every day

These foods provide a person with the proteins needed to develop and repair the body and also to build up strong muscles. They are good sources of vitamins, minerals and fibre and help to keep the immune system active.

Legumes include beans, peas, lentils, groundnuts, peanuts (including peanut butter) and soybeans. When eaten with staple foods the quality of protein is increased. Legumes are a cheaper protein source than animal foods, such as beef and chicken, and should be eaten every day, if possible.

Eat animal and milk products regularly

Foods from animals and fish should also be eaten as often as you can afford them. They supply good-quality proteins, vitamins and minerals and extra energy. They will help to strengthen muscles and the immune system.

These foods include all forms of meat, poultry (birds), fish, eggs and dairy products such as milk, sour milk, buttermilk, yoghurt and cheese. If insects, such as caterpillars or grasshoppers, are part of your diet, they also provide good nutrients.

Eat vegetables and fruit every day

Vegetables and fruit are an important part of a healthy and balanced meal. They supply the vitamins and minerals that keep the body functioning and the immune system strong. These foods are especially important for people living with HIV/AIDS to fight infection. Eat a wide variety as each one provides different vitamins and minerals. A recommended list is provided below.

Yellow, orange, red or dark green vegetables and fruit

Green leafy vegetables (spinach, pumpkin, cassava leaves), green peppers, squash, carrots, yellow peaches, apricots, papaya and mangoes

- Good sources of vitamin A

Other vegetables and fruit

Tomatoes, cabbage, oranges, mandarins, grapefruit, lemons, guavas, mangoes, passionfruit, pineapples, mulberries and baobab fruit

- Good sources of vitamin C; help to fight infection

Use fats and oils as well as sugar and sugary foods

Fats, oils and sugar are good sources of energy and also help to gain body weight. They add flavour to food, thereby stimulating the appetite.

Fats and oils play an important part in a healthy and balanced diet. Even small amounts can provide lots of energy. Fats and oils include butter, lard, margarine, cooking oil (vegetable, coconut and palm oil), cream, mayonnaise and coconut cream. They are also found in avocados, oilseeds (sunflower, groundnut and sesame), fatty meat and fish, curds and cheese.

Sugars and sugary foods include honey, jam, table sugar, cakes and biscuits.

Although fats and sugars are good sources of energy, they are not rich in other nutrients. They should therefore be eaten in addition to other foods, not in place of them.

Drink plenty of clean and safe water

Water is important for life and is necessary every day. A person needs about eight cups of fluid per day. When it is very hot, while working, sweating or suffering from diarrhoea, vomiting or fever, a person needs to drink even more to replace the water that has been lost. If drinking-water is collected from a protected well or borehole it is important to store it in a clean container. If the water is from an unprotected well or river the water should be boiled for at least ten minutes and stored in a clean container (see advice on food hygiene on p. 29). In addition to drinking clean water, fluid can also come from juices, soups, vegetables and fruit as well as meals that have gravy or sauces. However, avoid drinking tea or coffee with a meal, as this can reduce the absorption of iron from the food.

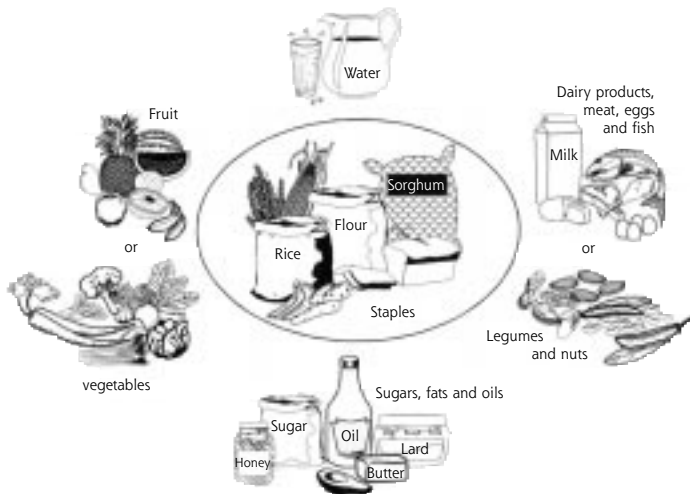
Alcoholic drinks remove water from the body and should therefore be consumed only in limited amounts. They can also interfere with the action of medicines.



Summary sheet 1

Healthy and balanced nutrition for growth, work and play

Enjoy a variety of foods



Eat staple foods with every meal

These foods are relatively cheap and supply not only energy and protein but also small amounts of vitamins and minerals. Staples include cereals (such as rice, maize, millet, sorghum, wheat and barley), starchy roots (such as potatoes, sweet potatoes, cassava and yams) and starchy fruit (such as plantains).

Eat legumes if possible every day

These foods include beans, peas, lentils, groundnuts, peanuts (including peanut butter) and soybeans. When eaten with staple foods the quality of protein is increased.

Eat animal and milk products regularly

Foods from animals and fish should be eaten as often as you can afford them. They supply good-quality proteins, vitamins, minerals and extra energy. All forms of meat, poultry (birds), fish, eggs and dairy products such as milk, sour milk, buttermilk, yoghurt and cheese should be included. If insects, such as caterpillars or grasshoppers, are part of your eating patterns, they also provide good nutrients.

continued...

18 Summary sheet 1

Eat vegetables and fruit every day

These foods are important for a person to grow well and fight infection. A recommended list is provided below.

Yellow, orange, red or dark green vegetables and fruit

Green leafy vegetables (spinach, pumpkin, cassava leaves), green peppers, squash, carrots, yellow peaches, apricots, papaya and mangoes

- Good sources of vitamin A

Other vegetables and fruit

Tomatoes, cabbage, oranges, mandarins, grapefruit, lemons, guavas, mangoes, passionfruit, pineapples, mulberries and baobab fruit

- Good sources of vitamin C; help to fight infection

Use fats and oils as well as sugar and sugary foods

Fats, oils and sugar are good sources of energy and are important for maintaining weight or regaining weight lost. They add flavour to food, thereby stimulating the appetite.

Fats and oils include butter, lard, margarine, cooking oil (vegetable, coconut and palm oil), cream, mayonnaise and coconut cream. They are also found in avocados, oilseeds (sunflower, groundnut and sesame), fatty meat and fish, curds and cheese.

Sugars and sugary foods include honey, jam, table sugar, cakes and biscuits.

Drink plenty of clean and safe water

Drink about eight cups of water per day and even more if you are suffering from diarrhoea, vomiting or fever. You can also drink fruit juice, soups and other beverages. Collect your water from a protected source and store it in a clean container. If the water is not from a protected source it should be boiled for ten minutes and cooled down afterwards before drinking. Avoid drinking tea or coffee with a meal, as they reduce the iron the body gets from your food.

four

Special eating needs for people living with HIV/AIDS

A person who is infected with HIV/AIDS and is not showing signs of illness does not need a specific “HIV-diet”. However, those infected with HIV should make every effort to adopt healthy and balanced nutrition patterns (as explained in Chapter three) in order to meet their increased protein and energy requirements and maintain their nutritional status.

Once people with HIV/AIDS become ill they will have special needs, which are described below.

PEOPLE LIVING WITH HIV/AIDS HAVE INCREASED NUTRIENT NEEDS

When infected with the HIV virus the body’s defence system – the immune system – works harder to fight infection. This increases energy and nutrient requirements. Further infection and fever also increase the body’s demand for food. Once people are infected with HIV they have to eat more to meet these extra energy and nutrient needs. Such needs will increase even further as the HIV/AIDS symptoms develop.

HIV/AIDS reduces food intake

People with HIV/AIDS often do not eat enough because:

- the illness and the medicines taken for it may reduce the appetite, modify the taste of food and prevent the body from absorbing it;
- symptoms such as a sore mouth, nausea and vomiting make it difficult to eat;
- tiredness, isolation and depression reduce the appetite and the willingness to make an effort to prepare food and eat regularly;
- there is not enough money to buy food.

HIV/AIDS reduces the absorption of food

Food, once eaten, is broken down by digestion into nutrients. These nutrients pass through the gut walls into the bloodstream and are transported to the organs and tissues in the body where they are needed. One of the consequences of HIV and other infections is that since the gut wall is damaged, food does not pass through properly and is consequently not absorbed.

Diarrhoea is a common occurrence in people with HIV/AIDS. When a person has diarrhoea the food passes through the gut so quickly that it is not properly digested and fewer nutrients are absorbed.

Reduced food intake and absorption lead to weight loss and malnutrition.

HIV/AIDS AFFECTS WEIGHT

When a person does not eat enough food, or the food eaten is poorly absorbed, the body draws on its reserve stores of energy from body fat and protein from muscle. As a result, the person loses weight because body weight and muscles are lost.

The weight loss may be so gradual that it is not obvious. There are two basic ways to discover whether weight is being lost.

- Weigh the person on the same day once a week and keep a record of the weight and date (see sample sheet in Annex 4). For an average adult, serious weight loss is indicated by a 10 percent loss of body weight or 6-7 kg in one month. If a person does not have scales at home it might be possible to make an arrangement with a chemist, clinic or local health unit to weigh him or her.
- When clothes become loose and no longer fit properly.

If a person loses weight he or she needs to take action to increase weight to the normal level.

GAINING WEIGHT

Weight is gained by eating more food, either by eating larger portions and/or eating meals more frequently, using a variety of foods as described in the previous chapter. Here are some suggestions for gaining weight:

- Eat more staple foods such as rice, maize, millet, sorghum, wheat, bread, potatoes, sweet potatoes, yams and bananas.
- Increase intake of beans, soy products, lentils, peas, groundnuts, peanuts, peanut butter and seeds, such as sunflower and sesame.
- Include all forms of meat, poultry, fish and eggs as often as possible. Minced meat, chicken and fish are easier to digest. Offal (such as kidney and liver) can be the least expensive source.
- Eat snacks regularly between meals. Good snacks are nuts, seeds, fruit, yoghurt, carrots, cassava crisps, crab crisps and peanut butter sandwiches.
- Slowly increase the fat content of the food by using more fats and oils, as well as eating fatty foods – oilseeds such as groundnuts, soy and sesame, avocados and fatty meat. If problems with a high fat intake are experienced (especially diarrhoea), reduce the fat intake until the symptoms are over and then gradually increase it to a level that the body can tolerate.
- Introduce more dairy products such as full-cream milk, sour milk, buttermilk, yoghurt and cheese into the diet.
- Add dry milk powder to foods such as porridge, cereals, sauces and mashed potatoes. However, do not use coffee and tea whiteners, which do not have the same nutritional benefits as milk. Note that some people may find milk difficult to digest. It should be avoided if it causes cramps, a feeling of being full or skin rashes.
- Add sugar, honey, jam, syrup and other sweet products to the food.
- Make meals as attractive as possible.
- Recipes following these recommendations for gaining weight are provided in Annex 1.

Increasing the number of meals and snacks in a day. If poor appetite persists or the person is ill, it is a good idea to spread the food intake throughout the day. Snacks should be included in the daily meal plan.

- A snack is any nutritious food that is readily available and can be eaten without much preparation. Good snacks are nuts, seeds, fruit, yoghurt, carrots, cassava chips, crab chips and peanut butter sandwiches. With at least three meals a day and snacks in between, there is less likelihood of malnutrition or weight loss.
- If a person needs to stay in bed, food and water should be kept within easy reach.

- Carers should ensure that sick members of the family are given preference, fed more frequently and receive extra servings to maintain their weight and strength. Food should be served in an attractive way. Carers need to be kind, while frequently encouraging people to eat.

Exercise improves well-being. Regular exercise makes a person feel more alert, helps to relieve stress and stimulates the appetite. Exercise is the only way to strengthen and build up muscles. The body uses muscles to store energy and protein that the immune system can draw upon when required. Exercise is therefore especially important for maintaining the health of people with HIV/AIDS.

It may be that everyday activities such as cleaning, working in the field and collecting firewood and water provide enough exercise. If a person's work does not involve much exercise, an enjoyable exercise programme should be found that can be part of his or her daily life. Exercise should not be tiring or stressful; gentle muscle-building exercise is recommended. Walking, running, swimming or dancing are all suitable. People living with HIV/AIDS need to make an effort to find the exercise that they enjoy and that suits their situation.

Preventing weight loss during and after illness. Infection increases the body's requirements for nutrients. Illness also reduces the appetite and the ill person will eat less food, causing weight loss. Recommendations for dealing with poor appetite, diarrhoea, vomiting, sore mouth and nausea are given in Chapter six.

Early treatment of infection is important to maintain body weight. If infection persists and cannot be cured by nutritional management within a couple of days, advice and treatment should be sought from a doctor, nutritionist, nurse or local health worker.

Once the infection is over and the person is feeling better, he or she should start eating normally again. It is important to regain the weight lost as soon as possible and to restore the body's nutritional reserves.

Try to eat three good meals daily with frequent snacks in between



INCREASE VITAMIN AND MINERAL INTAKE

Vitamins and minerals are essential to keep healthy. They protect against opportunistic infection by ensuring that the lining of skin, lungs and gut remain healthy and that the immune system functions properly. Of special importance are vitamin A, vitamin C, vitamin E, certain B-group vitamins and minerals such as selenium, zinc and iron. A mixed diet as recommended in Chapter three should provide enough of these vitamins and minerals. Some background information on micronutrients, their nutritional role and food sources is provided in Annex 3.

Vitamin A is important to keep the lining of skin, lungs and gut healthy. Vitamin A deficiency increases the severity of diseases such as diarrhoea while infection will increase the loss of vitamin A from the body. Good vitamin A sources are dark green, yellow, orange and red vegetables and fruit. These include spinach, pumpkin, cassava leaves, green peppers, squash, carrots, amaranth, yellow

peaches, apricots, papaya and mangoes. Vitamin A is also contained in red palm oil, yellow maize, orange and yellow sweet potatoes, egg yolks and liver.

Vitamin C helps to protect the body from infection and aids in recovery. It is found particularly in citrus fruits such as oranges, grapefruit, lemons and mandarins. Guavas, mangoes, tomatoes and potatoes are also good sources of vitamin C.

Vitamin E protects cells and aids resistance to infection. Foods containing vitamin E are green leafy vegetables, vegetable oils, peanuts and egg yolks.

Vitamin B-group. This group is necessary to keep the immune and nervous system healthy. Vitamins, however, may be lost from the body through the use of certain medicines for the treatment of tuberculosis. Good food sources include white beans, potatoes, meat, fish, chicken, watermelon, maize, grains, nuts, avocados, broccoli and green leafy vegetables.

Iron. Iron-deficiency anaemia is a widespread problem in many countries, especially among women and children. Good iron sources are green leafy vegetables, seeds, whole-grain products, dried fruit, sorghum, millet, beans, alfalfa, red meat, chicken, liver, fish, seafood and eggs.

Selenium is an important mineral because it helps to activate the immune system. Good sources include whole grains such as wholemeal bread, maize and millet and dairy products such as milk, yoghurt and cheese. Meat, fish, poultry, eggs and other protein-rich foods are also good sources, as are peanut butter, dried beans and nuts.

Zinc is also important for the immune system. Zinc deficiency reduces the appetite. Sources include meat, fish, poultry, shellfish, whole-grain cereals, maize, beans, peanuts and milk and dairy products.

Further recommendations

Since the vitamin content of food can be damaged during cooking, it is better to boil, steam and fry vegetables for a short time only. Boil vegetables in a little water and use it afterwards for cooking as it contains considerable amounts of vitamins and minerals. Vegetables will lose some of their vitamins and minerals if soaked for a long time.

The skins and kernels of grains and legumes contain vitamins, in particular of the B-group. Processed refined grains have lost many of their vitamins,

minerals and proteins so whole grains such as brown bread and unrefined cereals are better sources than white bread and refined cereals. Fortified cereals and bread are preferred because of their higher vitamin content. If a person has diarrhoea, however, whole unrefined grains and cereals should be avoided since these insoluble fibres make the diarrhoea worse. Soluble fibre foods such as bananas are recommended. Fibres are contained in many plant foods. Soluble fibres will bind water in the gut and therefore reduce diarrhoea.

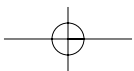
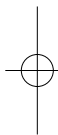
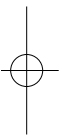
MICRONUTRIENT SUPPLEMENTATION – WHICH, HOW MUCH AND WHEN?

When food intake is low, multivitamin and mineral supplements – often in the form of pills – can help to meet increased requirements. However, these supplements are often not available, they are expensive and leave less money for food. It would therefore be better to provide a good mixed diet whenever possible rather than buy supplements.

If supplements are considered necessary, the following guidelines should be adhered to:

- Discuss your intake of vitamin and mineral supplements with your health worker or nutritionist.
- Always take vitamin pills on a full stomach. Be consistent and take them regularly.
- It is probably cheaper to take a combined product with minerals rather than several pills containing different vitamins and minerals. However, iron may be a problem for people with HIV/AIDS as it can increase the activity of some bacteria. Supplements that do not contain iron are therefore better.
- Take any vitamin or mineral supplementation according to the advice on the label. More is not better. Taking high doses can cause nausea, vomiting, decreased appetite and liver and kidney problems as well as interfere with the immune system. This is particularly true for Vitamin A, E, zinc and iron.

Micronutrient supplements can be useful but cannot replace eating a balanced and healthy diet.



Summary sheet 2

Maintaining weight

If you are sick with HIV/AIDS you need more food to recover from illness. When your body does not get enough food it uses energy and protein stored in fat and muscles. This leads to weight loss, muscle weakness and malnutrition from which it takes longer to recover. Once weight has been lost it is difficult to regain it.

Why do people with HIV/AIDS not eat enough food?

- Illness and medicines reduce appetite, modify the taste of food and prevent the body from absorbing it.
- Symptoms such as a sore mouth, nausea and vomiting make it difficult to eat.
- Tiredness, isolation and depression reduce the appetite and the willingness to make an effort to prepare food and eat regularly.
- There is not enough money to buy food.

Gain weight by eating more food

- Eat more staple foods such as rice, maize, millet, sorghum, wheat, bread, potatoes, sweet potatoes, yams and bananas.
- Increase your intake of beans, soy products, lentils, peas, groundnuts, peanuts, peanut butter and seeds, such as sunflower and sesame.
- Eat meat, fish and eggs as often as you can afford them.
- Increase the fat content of your food by using more fats and oils as well as eating fatty foods – oilseeds such as groundnuts, soy and sesame, avocados and fatty meat. If problems with a high fat intake are experienced (especially diarrhoea), reduce the fat intake until symptoms are over and then gradually increase it to a level the body can tolerate.
- Eat snacks regularly between meals. Good snacks are nuts, seeds, fruit, yoghurt, carrots, cassava chips, crab chips and peanut butter sandwiches.
- Add dry milk powder to foods such as porridge, cereals, sauces and mashed potatoes. However, avoid using coffee and tea whiteners, which do not have the same nutritional benefits as milk. Note that some people may find milk difficult to digest. It should be avoided if it causes cramps, a feeling of being full or skin rashes.
- Add sugar, honey, jam or syrup to your food.

continued...

- It is very important to try to eat, even though you may not feel like eating, to avoid weight loss.
- Treat infection as early as possible. If you are ill for more than a couple of days see a health worker.

Protect the quality and safety of your food

Food can be contaminated with harmful bacteria and viruses (called germs), which produce poisonous toxins. A person eating this food may be infected by the germs and made sick from the toxins. Because HIV affects the immune system and the body's resistance to disease, people with HIV/AIDS are more vulnerable to germs and should be careful to avoid eating contaminated food. If they get food poisoning, they will lose weight and become even weaker, which will lower the body's resistance to future infection.

Most food poisoning can be prevented by following some basic rules of hygiene. Food hygiene measures have two aims: i) to prevent contamination in food preparation areas; and ii) to prevent germs from multiplying in food and reaching dangerous levels. The food safety and hygiene practices suggested below will achieve both these aims and ensure maximum protection from the risk of harmful germs.

Disposal of faeces

Many of the germs responsible for food poisoning are spread through faeces. Aim to:

- use a latrine and keep it clean and free from flies;
- keep the surroundings clean;
- wash clothes, bedding and surfaces that might have been contaminated with faeces in hot water with soap.

Personal hygiene

- Always wash hands with clean water and soap or ashes before, during and after preparing food or eating, and after visiting the toilet. Dry hands on a clean cloth or towel.
- Cover all wounds to prevent contamination of food during preparation and handling.
- Use safe clean water from protected sources such as treated piped water supplies, boreholes, gravity feed schemes and protected wells. If the water is not from a protected source, it should be boiled before consumption. Care must be taken during collection and storage to use clean containers to prevent contamination. Water containers in the home can easily become contaminated by dirty cups and hands that have not been washed. When people drink contaminated water they will become sick.



Hygiene in the kitchen

- Keep all food preparation surfaces clean. Use clean dishes and utensils to store, prepare, serve and eat food.
- Wash vegetables and fruit with clean water.
- Cover food to prevent both flies and dust from contaminating the food.
- Keep rubbish in a covered bin (and empty it regularly) so it will not cause offensive smells and attract flies, which can contaminate food with germs.

Cooking and storage of food

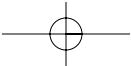
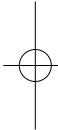
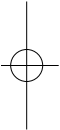
Germs multiply more quickly in warm food. Storing food in a refrigerator or cool place slows down this growth. Cooking on a high heat can also kill most germs. Food should be eaten as soon as it is cooked.

- Cover and store food in containers away from insects, rodents and other animals.
- Store fresh food in a cool place or refrigerator where available.
- Cook food thoroughly, but do not overcook vegetables.
- Serve food immediately after cooking. Do not leave the food standing at room temperature before eating, to avoid germs multiplying.
- Do not store raw and cooked food together; use containers to avoid contact between them.
- Avoid storing leftovers unless they can be kept in a refrigerator or a cool place. Do not store them for more than one or two days and always reheat them at a high temperature.

Animal foods

- Cook meat and fish well; meat should have no red juices.
- Wash utensils and surfaces touched by animal products with hot water and soap before preparing other foods.
- Keep meat and fish separate from other foods.
- Eggs should be hard boiled. Do not eat soft-boiled eggs, raw eggs, cracked eggs or any foods containing raw eggs.

However careful one is, food-borne infections may happen. The advice for diarrhoea in Chapter six will help, but when a person has serious food poisoning it is important to see a health worker without delay in order to avoid weight loss and further illness.



Summary sheet 3

Food safety and hygiene



Keep the home free from faeces

- Use a latrine and keep it clean and free from flies.
- Keep the surroundings clean.
- Wash clothes, bedding and surfaces that might have been contaminated with faeces in hot water with soap.

Personal hygiene

- Always wash hands with clean water and soap or ashes before, during and after preparing food or eating, and after visiting the toilet.
- Cover all wounds to prevent contamination of food during preparation and handling.
- Use safe clean water from protected sources. If the water is not from a protected source, it should be boiled for ten minutes or filtered.

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Storage of drinking-water

- Keep drinking-water in a covered container that is cleaned at least once a week.
- Do not dip hands or cups into the container.
- The best container is one with a tap.

Hygiene in the kitchen

- Keep all food preparation surfaces clean. Use clean dishes and utensils to store, prepare, serve and eat food.
- Wash vegetables and fruit with clean water.
- Cover food to keep flies and dust away.
- Keep rubbish in a covered bin and empty regularly.

Cooking and storage of food

- Cover and store food in containers away from insects.
- Throw away any food that has gone bad, or is well past its sell-by date.
- Cook food thoroughly, but do not overcook vegetables.
- Serve food immediately after cooking.
- Store fresh food in a cool place or refrigerator.
- Do not store raw food, especially meat, close to cooked food.
- Avoid storing leftovers unless they can be kept in a cool place or refrigerator. Always reheat them at a high temperature.

Meat, poultry and fish

- Cook meat and fish well; meat should have no red juices.
- Wash utensils and surfaces touched by meat, poultry or fish with hot water and soap before preparing other foods.
- Eggs should be hard boiled. Do not eat soft-boiled eggs, raw eggs, cracked eggs or any foods containing raw eggs.

However careful one is, food-borne infections may happen. If you get diarrhoea, follow the advice in Summary sheet 4 but if you feel very ill with diarrhoea, vomiting and pain, see a health worker without delay.

Coping with the complications of HIV/AIDS

Suggestions are made in this chapter as to which foods should be eaten or avoided for the following symptoms:

- Diarrhoea
- Lack of appetite
- Nausea and vomiting
- Sore mouth or when eating is painful
- Other digestive problems
- Changes in the taste of foods
- Skin problems
- Colds, coughs and influenza
- Fever

A person may have two or more of these conditions at the same time so will need to choose suitable foods carefully. Since people react to foods differently, they will have to select those that work for them. Normal mixed diets can be resumed as soon as the problem is resolved.

DIARRHOEA

When a person passes a watery stool three or more times a day, they have diarrhoea. Diarrhoea is a problem for many people with HIV/AIDS; it leads to loss of water and minerals from the body. This loss is even greater if the person is vomiting. In severe cases, diarrhoea causes dehydration, poor absorption of food, significant weight loss and malnutrition, resulting in weakness and further illness. In young children diarrhoea can quickly become serious and, if not treated, lead to death.

Diarrhoea can have many causes. It may be a symptom of disease or a side-effect of medicines and is often caused by contamination of food because of food hygiene problems. It can be made worse by eating certain foods.

Many people mistakenly believe that with diarrhoea they should stop eating and drinking and take medicines. However, reducing food intake may make the problem more serious. Discuss the use of anti-diarrhoeal medicine with a health worker or doctor. Do not use medicine prescribed for other people.

Diarrhoea is the body's way of removing poisonous materials from the gut. Even though most diarrhoea will cease after a few days, the best action is to drink lots of fluid (or the oral rehydration solution (ORS) described in the box on pp. 37-38), continue eating and treat any underlying cause, if known, until the diarrhoea ceases.

Most diarrhoea can be treated at home, following the simple instructions below. Seek advice from a health worker if it lasts for more than three days, if fever develops, blood appears in the stool, or if you become very weak.

Prevention is better than cure. Many cases of diarrhoea can be prevented by following the rules of hygiene given in Chapter five.

Do not stop eating when having diarrhoea; drink lots of fluids

General recommendations. Drink more than eight cups of fluid, particularly water, per day. It is also good to take fluid in other forms to replace the salts that have been lost and provide energy. Some suggestions are given below for easily digested foods and drinks that will help to rehydrate the body and provide salts, energy and vitamins.

Recommended foods and drinks. Drink soups, fruit juices diluted with water or an oral rehydration solution.

- Eat soft, mashed, moist foods such as soft vegetables and fruit, porridge from cereals, rice, bananas, potatoes and stews with refined maize meal, rice, barley or potatoes. Soft vegetables also include squash, pumpkins and carrots, and vegetable soup. See recipes in Annex 1.
- To replace lost minerals, eat soft vegetables and fruit, particularly bananas, mangoes, papaya, watermelon, pumpkins, squash, potatoes and carrots.
- Eat refined foods (soluble fibres) such as white rice, maize meals, white bread, noodles and potatoes.

- Peel and cook vegetables and fruit so they can be better tolerated.
- Eat food warm, rather than very hot or very cold.
- Eat small, frequent meals.

Foods and drinks to limit or avoid. Some foods can make diarrhoea worse. Try to remove one food at a time from the diet and see if it makes a difference.

- Fats can make diarrhoea worse and cause nausea. Fat intake should then be reduced, adding less or no cooking oil, cutting off visible fat or skin from meat and boiling food rather than frying it. However, fat is an important energy source and should not be omitted from a diet unless really necessary.
- Green, unripe and acidic vegetables and fruit such as tomatoes, pineapple and citrus fruit sometimes may not be tolerated.
- Milk sometimes may not be tolerated, so see if heated milk or yoghurt is digested better.
- Coffee, tea and alcohol can worsen dehydration. They should be replaced by other fluids such as water, herbal tea and soups.
- Very spicy foods such as chillies and pepper may sometimes make diarrhoea worse.
- Foods such as beans, broccoli, cauliflower, cabbage, Brussels sprouts, onions and green peppers that produce gases should be avoided.

A person should drink as often as possible throughout the day and night and every time a stool is passed. An adult normally needs about 1.5 litres or eight cups of fluid per day. In severe cases of diarrhoea this may be increased to up to three litres a day.


Preparing an oral rehydration drink



From packets

Follow the instructions and dissolve the contents of the packet in the amount of clean water that is stated on the packet.

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1 litre water

1/2 level teaspoon salt

8 level teaspoons sugar

With sugar and salt

To one litre of clean water, add half a teaspoon of salt and eight teaspoons of sugar. Stir or shake well. The water should taste no more salty than tears.



1 litre water

1/2 level teaspoon salt

8 level teaspoons cereal

With powdered cereals

To one litre of clean water, add half a teaspoon of salt and eight teaspoons of powdered cereals. Rice is best, but fine ground wheat flour, maize, sorghum or cooked mashed potatoes can also be used. Boil for 5-7 minutes to make a liquid soup or watery porridge. Cool the drink quickly.

LACK OF APPETITE

Poor appetite is one of the most common problems in people with HIV/AIDS. It can have many causes including infections, pain (particularly in the mouth or gut), depression, anxiety, tiredness or poor nutritional intake. The feeling of hunger may disappear or the person may be easily satisfied and therefore not want to eat enough. However, it is very important to continue eating to prevent weight loss and malnutrition and to maintain strength in order to speed recovery.

When not hungry ... the best way to regain appetite is to eat

- Try different foods until you find those that you like and try to have a mixed diet.
- Eat smaller meals more often. Eat whenever your appetite is good – do not be too rigid about fixed times for meals.
- Try the recipes for simple meals in Annex 1 that can help to restore appetite.

- Try to drink a lot of water, milk, yoghurt, soups, herbal teas or juices throughout the day. Drink mainly after, and in between meals – do not drink too much before or during meals. Recipes for herbal teas and spice drinks are given in Annex 1.
- Add flavour to food and make it look and taste interesting. Squeeze some lemon juice over it or add spices such as cardamom, fennel, coriander and cinnamon.
- Avoid fizzy drinks, beer and foods such as cabbage, broccoli and beans that create gas in the stomach and can make you feel bloated.
- Try rinsing your mouth out before eating as this can make food taste fresher.
- Take light exercise such as walking outdoors, for example, and breathing plenty of fresh air to stimulate an appetite.
- Eat in a well-ventilated room away from cooking or unpleasant smells.
- Eat with your family or friends. If you have to stay in bed, they can join you at your bedside.
- Avoid alcohol. It reduces appetite, weakens the body and interferes with medicines.
- If the reason for lack of appetite is diarrhoea, nausea and vomiting, or a sore mouth, follow the guidelines given later in this chapter.

NAUSEA AND VOMITING

Nausea reduces the appetite and can be caused by certain foods, hunger, infections, stress and lack of water. It can also be a side-effect of medicines although certain medicines can help to relieve nausea. A health worker will provide advice.

If vomiting occurs, the body will lose water and will dehydrate even more quickly. If a person is too sick to eat, small and frequent drinks of water, fruit juice and vegetable soups may help (see Annex 1).

How to deal with nausea and vomiting

General recommendations

- Sit up when eating. Try not to lie down until one or two hours after eating.
- Drink plenty of fluids after meals.

- Try not to prepare food yourself. The smell of preparing or cooking food may worsen the feeling of nausea. Ask somebody else to prepare food or eat foods that require little preparation.

Recommended foods to eat and drink

- If vomiting occurs, keep drinking small amounts of water, soups and spice teas (see Annex 1). Eat soft foods and go back to solid foods when the vomiting stops.
- You may be able to relieve the feeling of nausea by smelling fresh orange or lemon peel, or by drinking lemon juice in hot water or a herbal or ginger tea (see Annex 1).
- Eat dry and salty foods such as toast, crackers and cereal.

Foods to avoid

- Fatty, greasy and very sweet foods can make nausea worse. Try to remove one food at a time from the diet to see if it makes a difference. If so, avoid that food. What affects one person may not affect others. People need to find out what suits them best.
- There are medicines that can reduce nausea. Discuss with a doctor or health worker.

SORE MOUTH OR WHEN EATING IS PAINFUL

Soreness of the mouth and tongue is common in people with HIV/AIDS. A sore mouth can make it difficult to eat, thus reducing food intake.

How to deal with a sore mouth

- Eat soft, mashed, smooth or moist foods such as avocados, squash, pumpkins, papaya, bananas, yoghurt, creamed vegetables, soups, pasta dishes and minced food.
- Add liquids to foods or soften dry food by dipping in liquids.
- Drink cold drinks, soups, vegetable and fruit juices.
- Use a straw for drinking fluids.
- If the gums are painful and brushing the teeth is not possible, rinsing the mouth with bicarbonate of soda mixed with water will make the mouth feel fresh.
- Chewing small pieces of green mango, kiwi or green papaya may help to relieve pain and discomfort.

- Drinks such as spice teas, fermented sour cabbage water or yoghurt may help to ease a sore mouth when eating is painful (see Annex 1).

Foods and drinks to avoid

- Very spicy and salty foods such as chillies and curries.
- Acidic or very sour foods such as oranges, lemons, pineapple, vinegar and tomatoes.
- Food and drinks that are too hot or too cold. Keep food and drinks at room temperature.
- Foods that need a lot of chewing such as raw vegetables, or are sticky and hard to swallow such as peanut butter.
- If candida (oral thrush) is diagnosed, cut down on sweet foods such as sugar, honey and sweet fruit and drinks because sugar may make the condition worse.

OTHER DIGESTIVE PROBLEMS

People with HIV/AIDS may have problems in digesting certain foods or may suffer from constipation and bloating. These problems are caused by damage to the naturally occurring bacteria in the intestine, which are needed to digest food. These bacteria may be destroyed by antibiotics or other medicines.

How to deal with these problems

General recommendations

- Chewing food well will make it easier to digest.
- Chopped papaya added to meat acts as a tenderizer and helps digestion.
- Fermented foods such as sour cabbage water, sour porridge, yoghurt and sprouts (see Annex 1) can be easier to digest and help the digestion of other foods.
- Use recommended foods as if they were medicine, particularly during and after antibiotic treatment. Eat three times a day before or with meals and continue for two weeks.

Foods to avoid

- People can experiment by omitting a particular food and seeing if it makes them feel better. Some people find fatty foods such as fried foods, chips, hard cheese, peanut butter and cream difficult to digest. However, they can go back to a normal mixed diet once they feel better.

How to stop constipation

- Eat insoluble fibre, contained in foods such as raw vegetables and fruit, dried fruit, wholemeal dark bread, whole-grain cereals, nuts and seeds.
- Eat frequent and small meals regularly throughout the day.
- Drink plenty of fluids throughout the day.
- Be active and exercise regularly to stimulate bowel movement and improve digestion.

How to prevent a bloated feeling

- Do not drink too much with food.
- Avoid foods such as cabbage, beans, onion, broccoli, Brussels sprouts and cauliflower and cold fizzy drinks that create gas in the stomach.
- Some people find it difficult to digest wholemeal foods and foods rich in dietary fibre, particularly when the diet also contains sugar and sugary foods. Try to exclude sugar and sugary foods from the diet for a while.

CHANGES IN THE TASTE OF FOODS

As a result of drug side-effects and infections, people may find that foods have a different taste or texture from usual. They may develop cravings for food that they did not like in the past. However, these situations are common during illness.

How to deal with these changes

- Experiment with different foods and spices until you find foods you like. Try to have a varied diet.
- Mint, garlic, ginger and other herbs and spices may seem to lose their taste when medicines are being taken. Try preparing food with sugar, vinegar or lemon instead.

SKIN PROBLEMS

Skin problems such as rashes and sores are common in people suffering from HIV/AIDS. Other problems such as dry patches or poor healing of wounds may be related to malnutrition or specific micronutrient deficiencies.

Poor skin conditions can be caused by lack of vitamin A or vitamin B6. Although many skin problems may need specific medical treatment, the addition of foods rich in vitamin A and/or B6 to the diet may help to prevent skin problems or improve the condition over time. Good sources of vitamin A are yellow, orange and green vegetables and liver. Good sources of vitamin B6 are cereals, kernels, whole grains, seeds and nuts as well as figs and green leafy vegetables.

COLDS, COUGHS AND INFLUENZA

Colds and influenza (flu) are common virus infections that can cause a runny nose, sore throat, cough and sometimes fever. However, these infections almost always disappear without medicine.

How to deal with colds and flu

- Drink plenty of water or other fluids and have plenty of rest.
- Prepare special teas for colds (see Annex 1) and drink them for as long as symptoms last.

A cold normally lasts about a week. If it lasts longer, or other symptoms are present such as a high fever or a cough with a lot of mucus, blood or odorous discharge, see a health worker because there may be an underlying infection.

Coughs

Coughing is how the body cleans the lungs and throat by getting rid of mucus and germs. Therefore, do not take any medicines to stop coughing but try to loosen the mucus.

- Breathe in hot vapours. Take a bowl or pot filled with very hot water and cover the head with a towel. Breathe in the vapours deeply for ten minutes, twice a day. Eucalyptus, mint or thyme leaves can be added, but hot water works just as well on its own.

- Try onion tea or cough syrup to ease the symptoms (see Annex 1).
- Drink lots of water or other fluids.

Sore throat

A sore throat is usually caused by colds or flu and is normally not serious. However, if it persists for several weeks, see a health worker. The following may help to ease a sore throat.

- Crush a lemon and mix it with honey. Take a large spoonful as necessary.
- Try gargling a strong solution of salt and water several times a day.
- Prepare teas and plant extracts for sore throats (see Annex 1) and take them for as long as the symptoms last.

FEVER

- Drink plenty of fluids.
- Cool down by sponging your body with a wet cloth.
- Try traditional remedies for reducing fever, such as neem tea (see Annex 1). Aspirin or paracetamol can also be taken but read the instructions carefully about safe doses first – especially when giving to children.
- Do not give aspirin to children or people with stomach and kidney problems.

Summary sheet 4

Diarrhoea

When a person passes a watery stool three or more times a day, they have diarrhoea. Good nutrition can help to prevent and control diarrhoea.

Do not stop eating when you have diarrhoea; drink lots of fluids

- Drink plenty of fluids – at least eight cups per day – to replace lost water.
- Drink soups, fruit juice diluted with water or an oral rehydration solution (ORS).
- Eat soft, mashed, moist foods such as soft vegetables and fruit, porridge from cereals, rice, bananas, mangoes, papaya, watermelon, potatoes and stews with refined maize meal, rice, barley or potatoes. Soft vegetables also include squash, pumpkins and carrots, and vegetable soup.
- Eat refined foods such as white rice, maize meals, white bread, noodles and potatoes.
- Peel and cook vegetables and fruit so they can be better tolerated.
- If fat causes problems, reduce fat intake by using less cooking oil, cutting off visible fat or skin from meat and boiling food rather than frying it. However, fat is an important energy source and should not be omitted from a diet unless really necessary.
- Do not eat foods that make your diarrhoea worse such as spicy foods and unripe or acidic vegetables and fruit.
- Discuss the use of medicines to stop diarrhoea with a doctor or health worker before taking any medication.

If the diarrhoea persists for more than three days, fever develops, blood appears in the stool or you become very weak, seek advice from a health worker.

A person should drink as often as possible throughout the day and night and every time a stool is passed. An adult normally needs about 1.5 litres or eight cups of fluid per day. In severe cases of diarrhoea this may be increased to up to three litres a day.

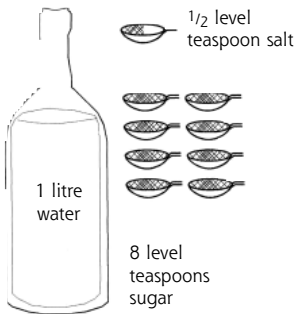
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Preparing an oral rehydration drink



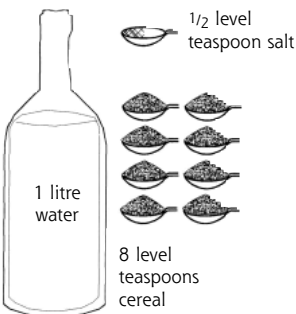
From packets

Follow the instructions and dissolve the contents of the packet in the amount of clean water that is stated on the packet.



With sugar and salt

To one litre of clean water, add half a teaspoon of salt and eight teaspoons of sugar. Stir or shake well. The water should taste no more salty than tears.



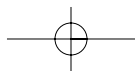
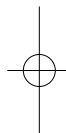
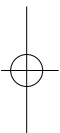
With powdered cereals

To one litre of clean water, add half a teaspoon of salt and eight teaspoons of powdered cereals. Rice is best, but fine ground wheat flour, maize, sorghum or cooked mashed potatoes can also be used. Boil for five to seven minutes to make a liquid soup or watery porridge. Cool the drink quickly.

Summary sheet 5

When you are not hungry ... the best way to regain your appetite is to eat

- You may lose your appetite or find that the taste and texture of foods change; this often happens with illness.
- Try different foods until you find those that you like and try to have a mixed diet.
- Eat smaller meals more often. Eat whenever your appetite is good – do not be too rigid about fixed times for meals.
- Try recipes that help to restore appetite.
- Try to drink a lot of water, milk, yoghurt, soups, herbal teas or juices throughout the day. Drink mainly after, and in between meals – do not drink too much before or during meals.
- Add flavour to your food and make it look and taste interesting. You could try squeezing some lemon juice over it or adding spices such as cardamom, fennel, coriander and cinnamon.
- Avoid fizzy drinks, beer and foods such as cabbage, broccoli and beans that create gas in your stomach and can make you feel bloated.
- Try rinsing your mouth out before eating as this can make food taste fresher.
- Take light exercise such as walking outdoors and breathing plenty of fresh air to stimulate an appetite.
- Eat with your family or friends. If you have to stay in bed, ask them to join you at your bedside.



Summary sheet 6

Nausea and vomiting

Dealing with nausea and vomiting

Some medicines can help to relieve nausea. If the nausea does not go away, seek advice from a health worker.

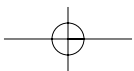
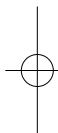
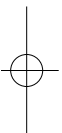
- Sit up when eating. Try not to lie down until one or two hours after eating.
- Drink plenty of fluids after meals.
- Try not to prepare food yourself. The smell of preparing or cooking food may worsen the feeling of nausea. Ask somebody else to prepare food or eat food with little preparation.

Foods to eat and drink

- If you are vomiting, keep drinking small amounts of water, soups and spice teas. Eat soft foods and go back to solid foods when the vomiting stops.
- You may be able to relieve the feeling of nausea by smelling fresh orange or lemon peel, or by drinking lemon juice in hot water or a herbal or ginger tea.
- Eat dry and salty foods such as toast, crackers and cereal.

Foods to avoid

- Fatty, greasy and very sweet foods can make nausea worse. Try to remove one food at a time from the diet to see if it makes a difference. If so, avoid that food. What affects one person may not affect others. You have to find out what suits you best.



Summary sheet 7

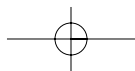
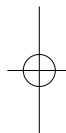
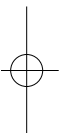
Sore mouth or throat or when eating is painful

General recommendations

- Eat soft, mashed, smooth or moist foods such as avocados, squash, pumpkins, papaya, bananas, yoghurt, creamed vegetables, soups, pasta dishes and minced food.
- Add liquids to foods or soften dry food by dipping in liquids.
- Drink cold drinks, soups, vegetable and fruit juices.
- Use a straw for drinking fluids.
- If your gums are painful and you cannot brush your teeth, rinse your mouth with bicarbonate of soda mixed with water.
- Chewing small pieces of green mango, kiwi or green papaya may help to relieve pain and discomfort.
- Drink spice teas, fermented sour cabbage or yoghurt.

Foods and drinks to avoid

- Very spicy and salty foods such as chillies and curries.
- Acidic or very sour foods such as oranges, lemons, pineapple, vinegar and tomatoes.
- Food and drinks that are too hot or too cold. Keep at room temperature.
- Foods that need a lot of chewing such as raw vegetables, or are sticky and hard to swallow such as peanut butter.
- If candida (oral thrush) is diagnosed, cut down on sweet foods such as sugar, honey and sweet fruit and drinks because sugar may make the condition worse.



Summary sheet 8

Colds, coughs, sore throat and fever

Colds

- Drink plenty of water or other fluids and have plenty of rest.
- Try drinking herbal teas.

If a cold lasts for more than a week, or if you have a high fever or a cough with a lot of mucus, blood or odorous discharge, see a health worker.

Coughs

Coughing is how the body cleans the lungs and throat by getting rid of mucus and germs. Therefore, do not take any medicines to stop the coughing but try to loosen the mucus.

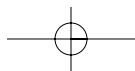
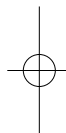
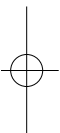
- Breathe in hot vapours. Take a bowl or pot filled with very hot water and cover your head with a towel. Breathe in the vapours deeply for ten minutes, twice a day. You can try adding eucalyptus, mint or thyme leaves.
- Try home-made cough syrup to ease the symptoms.

Sore throat

- Crush a lemon and mix it with honey. Take a large spoonful as necessary.
- Try herbal teas.

Fever

- Drink plenty of fluids.
- Try to bring down the fever by sponging your body with a wet cloth. Prepare herbal remedies such as neem tea (see Annex 1).
- Aspirin or paracetamol can also be taken but make sure to read the instructions about safe doses first. Do not give aspirin to children or people with stomach or kidney problems.



seven

Taking care of people living with HIV/AIDS

This manual is concerned with the food and nutrition components of home care for persons with HIV/AIDS. Nutritional needs must be seen in context with other needs. As explained in the introduction, nutrition education should be provided alongside other components that contribute to well-being, including health care, economic and social support and, especially, positive living. This chapter summarizes some key general social support messages that are important to ensure that nutrition education is effective for both people with HIV/AIDS and their carers.

TAKING CARE OF YOURSELF – ADVICE FOR THE PERSON WITH HIV/AIDS

Nutrition education has a place alongside other advice and support directed at promoting well-being and positive living. General recommendations for taking care of yourself are given below.

- The body needs extra rest. Try to sleep for eight hours every night. Rest whenever you are tired.
- Try not to worry too much. Stress can harm the immune system. Relax more. Relax with people you love, your family, your children and your friends. Do things you enjoy, e.g. listen to music or read a newspaper or a book.
- Be kind to yourself. Try to keep a positive attitude. Feeling good is part of being healthy.
- Take light exercise. Choose a form of exercise that you enjoy.
- Find support and get good advice. Ask for advice from health workers. Many medical problems can be treated.

- Ask for help and accept help when it is offered.
- Stop smoking. It damages the lungs and many other parts of the body and makes it easier for infections to attack your body.
- Alcohol is harmful to the body, especially the liver. It increases vulnerability to infection and destroys vitamins in the body; under the influence of alcohol you may forget to practise safe sex.
- Avoid unnecessary medicines. They often have unwanted side-effects and can interfere with food and nutrition. If you do take medicines, read the instructions carefully.

CARING FOR A PERSON WITH HIV/AIDS

The carer looking after a person with HIV/AIDS may be a member of the family or, if the person lives alone, a neighbour, relative or friend. It is not easy to care for a person with HIV/AIDS and whoever grows, prepares, cooks food and serves it to a person with HIV/AIDS needs support. The task involves meeting the needs of the sick person and balancing these with the needs of other members of the family. Too much help may be overprotective and take away the dignity, independence and self-respect of the person with HIV/AIDS while too little help may not provide the support that is needed to ensure that the person eats well and has the strength to resist infection.

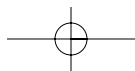
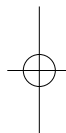
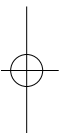
RECOMMENDATIONS FOR CARERS

- Spend time with the person living with HIV/AIDS. Discuss the foods they need to maintain and gain weight and manage their illness. Get to know what kind of foods they like and do not like. Involve them in planning their meals.
- Keep an eye on their weight. If possible, weigh them regularly and keep a record. Look out for any unexpected weight loss and take action.
- Check the medicines they are taking. Read the instructions to find out when they need to be taken, what foods to be avoided and any side-effects.
- Be encouraging and loving. If people want to have food of their choice at any time of the day, try to get it for them. They may suddenly stop liking a food, refuse what has been prepared and want something different. They are not trying to be difficult. These sudden changes in taste are a result of their illness.

- Be firm about the importance of eating and encourage them to eat frequently, but do not force them to eat. Giving them too much food at one time may cause them to refuse.
- If they are too sick to leave their beds, make sure that they have something to drink and a snack nearby.
- Keep a watchful eye. Look around to see if the house is clean, there are no hygiene problems and there is enough food.
- If the sick person lives alone, invite them to join your family for a meal. Encourage others in the community to visit them and invite them out.

Carers will have their own concerns and worries, fears for the future, for their families and for their own health. It is important that they take care of themselves, get enough rest and have the appropriate information and support to carry out their difficult task. The important messages given below cannot be emphasized enough.

- HIV/AIDS is not spread by food or water.
- HIV/AIDS cannot be spread by sharing food, dishes or cooking utensils such as cups, plates, knives and forks with a person who is HIV positive.
- HIV/AIDS cannot be spread by touching another person, hugging, shaking hands or holding other people in a normal way. There is no need to avoid body contact with a person living with HIV/AIDS.

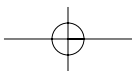
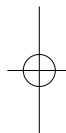
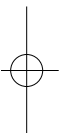


Summary sheet 9

Look after yourself

Positive living

- The body needs extra rest. Try to sleep for eight hours every night. Rest whenever you are tired.
- Try not to worry too much. Stress can harm your immune system. Relax more. Relax with people you love, your family, your children and your friends. Do things you enjoy, e.g. listen to music or read a newspaper or a book.
- Be kind to yourself. Try to keep a positive attitude. Feeling good is part of being healthy.
- Take light exercise. Choose a form of exercise that you enjoy.
- Find support and get good advice. Ask for information and assistance from health workers. Many of your medical problems can be treated.
- Ask for help and accept help when it is offered.
- Stop smoking. Smoking damages the lungs and makes it easier for infections to attack your body.
- Alcohol is harmful to your body. You may forget to practise safe sex.
- Avoid unnecessary medicines. They often have unwanted side-effects and can interfere with food and nutrition. If you do take medicines, read the instructions carefully.

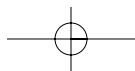
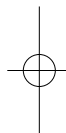
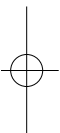


Summary sheet 10

Caring for someone with HIV/AIDS

Looking after a person with HIV/AIDS is not easy. Get enough rest yourself. Take some time off. Ask a friend or family member to help.

- Spend time with the person living with HIV/AIDS. Discuss the foods they need to maintain and gain weight and manage their illness. Get to know what kind of foods they like and do not like. Involve them in planning their meals.
- Keep an eye on their weight. If possible, weigh them regularly and keep a record. Look out for any unexpected weight loss and take action.
- Check the medicines they are taking. Read the instructions to find out when they need to be taken, what foods to be avoided and any side-effects.
- Be encouraging and loving. If they want to have food of their choice at any time of the day, try to get it for them.
- Be firm about the importance of eating but do not force the person to eat. Giving too much food at one time may cause them to refuse.
- If they are too sick to leave their beds, make sure that they have something to drink and a snack nearby.
- Keep a watchful eye. Look around to see if the house is clean, there are no hygiene problems and there is enough food.
- If the sick person lives alone, invite them to join your family for a meal. Encourage others in the community to visit them and invite them out.



Herbal treatments and remedies

The advice presented here is based on knowledge gained from people living with HIV/AIDS about useful herbal treatments and remedies. It does not claim that all herbs and remedies have the same effect on all people.

Many communities have their own knowledge of health and nutrition, based on local traditions and culture. It is important to understand and be sensitive to these traditional beliefs and the many kinds of traditional care available. They represent alternatives to formal general medicine and for many people will be the only options they have. Any external medical recommendations that people receive will be compared with their cultural practices and the recommendations of their traditional healers. People will only take action if the recommendations they receive appear to make sense and provide some benefit.

Some traditional beliefs and food practices may not be useful. It will be important to find out about local practices and explain both to people with HIV/AIDS and to traditional healers whenever and why such practices should not be followed. However, beneficial traditional practices that provide readily accessible, effective and low-cost remedies should be identified and promoted.

TRADITIONAL TREATMENTS: LOCALLY PROMOTED APPROACHES

Traditional treatments differ greatly from region to region and are often very specific to a location. Therefore, locally known and available treatments need to be included here and their advantages and disadvantages discussed. Information can be obtained from clinics, health offices and local HIV/AIDS information and support organizations. In some countries, associations of traditional healers may also have additional information.

People with HIV/AIDS often become frustrated with management of the disease. Many are willing to try anything in the hope of staying healthy and living longer.

HIV/AIDS is not a traditional illness and so far there is no hard evidence to believe that traditional medicines can treat HIV and cure AIDS. However, certain traditional medicines may help to treat many of the symptoms of opportunistic infections that are part of AIDS. While some of these medicines may be undoubtedly helpful, others may be dangerous because they may do more harm than good, they are expensive and therefore reduce money available for buying food, and they may require avoidance of certain foods. It is therefore recommended always to discuss treatments with a health worker or nutritionist and avoid any treatment or practice, such as fasting, that could possibly reduce food intake and cause weight loss.

HERBS AND SPICES

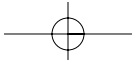
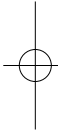
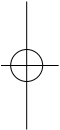
Herbs and spices can improve digestion, stimulate appetite and preserve foods. A list of herbs and the beneficial effects claimed by people living with HIV/AIDS are given in the table opposite. The effects may not be the same for all people. People can try these herbs and decide for themselves whether they are helpful. They may also know of other remedies used in their country that they want to add.

Remember that all herbs and spices should be used in moderate amounts. Exceeding these amounts may cause problems and have a toxic effect; moreover, the function of the herbs and spices will not be increased. They cannot replace healthy eating and should not be used in place of a healthy and balanced diet.

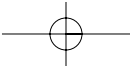
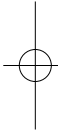
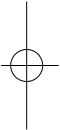
Herb	Benefits found by some people living with HIV/AIDS	How to use
Aloe	Helps to relieve constipation	Use as extract; boil and drink the concentrated water. To be used in limited amounts; stop immediately if it causes cramps or diarrhoea
Basil	Helps to relieve nausea and aid digestion; has an antiseptic function for mouth sores	Add to food to treat nausea and digestive problems. Use as gargle for mouth sores
Calendula	Flower heads have antiseptic, anti-inflammatory and healing function. Helps with infections of the upper digestive tract	Use as a compress to treat infected wounds. Prepare as tea to help digestion
Cardamom	Helps with digestive problems, pain, diarrhoea, nausea, vomiting and loss of appetite	Add to food during cooking or prepare as tea
Cayenne	Stimulates appetite, helps fight infection, heals ulcers and intestinal inflammation	Add a pinch to cooked or raw foods. For an energizing drink add to fruit juice or water
Camomile	Helps digestion and provides relief for nausea	Prepare tea from the leaves and flowers and drink several cups throughout the day
Cinnamon	Good for colds and for weakness after colds or flu. Also used when feeling cold, for diarrhoea and nausea. Stimulates appetite. Gently stimulates digestive juices, encouraging bowel movements	Either add to meals or in tea, particularly ginger cinnamon tea for chesty colds or tuberculosis (see recipe in Annex 1)
Cloves	Stimulate appetite, help weak digestion, diarrhoea, nausea and vomiting	Use in soups, stews, warmed fruit juice and tea
Coriander	Helps to increase appetite and reduce flatulence. Controls bacteria and fungi	Add herb to meals

Eucalyptus	Has an antibacterial function, particularly for lungs and during bronchitis. Eucalyptus oil from leaves increases the blood flow and reduces the symptoms of inflammation	Prepare tea from the leaves or extract (see recipe in Annex 1)
Fennel	Helps to increase appetite, combat flatulence and expel gas	Add as spice to foods or prepare tea from the seeds. Use in limited amounts
Garlic	Has antibacterial, antiviral and antifungal function, particularly in the gut, intestines, lungs and vagina. Helps digestion and feeling of weakness. Also good for thrush, throat infections, herpes and diarrhoea	Prepare tea or energy drink (see recipe in Annex 1), or use in food
Ginger	Improves digestion, energizes, relieves diarrhoea and stimulates appetite. Used for treating common colds, flu and nausea	Use either as a spice in meals or prepare a ginger tea (see recipe in Annex 1)
Lemon	Is antibacterial and helps digestion	Add lemon juice to food or drinks
Lemon grass	Has a calming effect as well as soothing digestion and alleviating stress	Use as tea
Mint	Has an anti-inflammatory effect and helps digestion	Use as tea or gargle for mouth sores. Chew mint leaves to aid digestion
Neem	Brings down fever	Cut a fresh twig, remove the leaves and boil the bark in water; drink as tea. The bark can also be chewed
Parsley	Reduces intestinal colic. Stimulates stomach secretions and activities and produces a feeling of hunger. The seed is used to remove excess water from the body	Add raw or cooked to food

Peppermint	May help nausea. Reduces colic (abdominal pain and cramps), helps to control diarrhoea and stop vomiting. Used for relieving tension and sleeplessness	Prepare as tea, by boiling the leaves for about ten minutes. Add to food. (Peppermint can easily be grown in the garden or in a pot near the house)
Thyme	Has antiseptic and antifungal function. Relaxes nervous coughing and increases mucosal secretions. Stimulates digestion and the growth of the good intestinal flora in the gut	Use as gargle or mouthwash, as a vaginal douche or as tea (particularly effective in the gut)
Turmeric/ yellow root	Digestive aid, antiseptic and antioxidant	Use powdered in rice, cereals, etc.



Annexes



Annex 1 – Recipes and food for a healthy diet

LIVING WELL WITH HIV/AIDS – a manual on nutritional care and support for people living with HIV/AIDS

RECIPES FOR GAINING WEIGHT AND FOR COMBATING DIARRHOEA, SORE MOUTHS, NAUSEA, VOMITING AND OTHER DIGESTIVE PROBLEMS

The recipes selected below are suggestions for food and drinks that may help to address some of the common complications arising from HIV/AIDS. All recipes should be pre-tested in countries and local situations and be adapted to locally available foods and taste preferences.

People living with HIV/AIDS may have problems in digesting fat (particularly when they are suffering from diarrhoea). In these cases, fat should be used in moderation, following the recommendations given.

Beans and tomatoes (easy and fast to prepare)

1 medium size tin baked beans, 1 medium size tin tomatoes or 5 fresh chopped tomatoes, parsley, basil leaves, grated cheese

Mix the beans and tomatoes together. Bring to boil and simmer slowly for ten minutes. Add freshly chopped herbs. Sprinkle grated cheese over before serving.

(You can also add minced meat or chopped leafy greens and simmer together with the vegetables.)

Bean broth

Beans, water, salt

Boil the beans (using more water than usual) until they are well cooked. Drink the broth or use it to make other soups. Serve to family members who do not have diarrhoea.

(You can also boil rice, maize meal or millet with the broth to add carbohydrates for more energy.)

Beef and lentils

Minced beef, onion, margarine, lentils (soaked overnight), carrots, salt, pepper, water, spinach or other green leaves, lemon juice

Fry beef and chopped onion in margarine in a large saucepan. When meat is brown add lentils, chopped carrots, salt and pepper. Add water, cover and cook

until lentils are tender (about 30 minutes). Add chopped green leaves and boil another ten minutes. Add a squeeze of lemon juice to serve.

Beef broth

Beef, water, carrot, onion, parsley, salt, pepper

Boil beef in water with chopped vegetables and parsley until beef is well cooked. Season to taste.

Carrot soup

Carrots, water, salt, cinnamon (optional)

Chop carrots and bring to the boil with water. Cook slowly until carrots are soft and then mash them. Add a pinch of salt and ground cinnamon.

Chicken stew

Pieces of chicken (raw or cooked), onion, garlic, oil, potatoes, carrots, pumpkin, water, greens

Fry the onion and garlic in a little oil. Add the chicken, potatoes, carrots and pumpkin. Add water just to cover. Bring to boil and then simmer until vegetables are very soft. Mash vegetables and chicken together. Add finely chopped greens before serving.

(If you have a sore mouth, cook the stew without the chicken and mash the vegetables until smooth. Cut the chicken in small pieces, cook separately and then add to the vegetables.)

Corn and cheese chowder

2 cups potatoes, 1 cup carrots, 1 cup celery, water, 1 tin corn, milk, 1 cup grated cheese, salt, pepper

Chop potatoes, carrots and celery. Boil slowly in one cup of water for 15 minutes. Add corn and simmer for five more minutes. Add milk and heat until boiling. Remove from heat and add grated cheese and salt and pepper to taste.

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LIVING WELL WITH HIV/AIDS – a manual on nutritional care and support for people living with HIV/AIDS

Energy drink

Large clove of garlic, turmeric, finely chopped fresh or ground ginger, water, milk

Boil together all the ingredients. Simmer for ten minutes. Cool slightly. Add a teaspoon of honey or sugar if you like the drink sweet.

(If you have diarrhoea or difficulty in digesting milk, replace it with water.)

Fish curry and yellow rice

Fish, onions, garlic, ginger, oil, tomatoes, mild curry powder, any combination of vegetables, water, lemon juice, dried coconut, jam, salt

For the rice: rice, water, turmeric, dried coconut, jam, lemon juice, salt

Chop and fry the onions, garlic and ginger in a little oil until brown. Chop and add the tomatoes. Add the curry powder, fish and vegetables. Cook until soft. Add water if necessary. Add lemon juice, coconut, jam and salt to taste.

(Prepare the rice as you normally do, but add turmeric to the water when you start cooking. It will make the rice yellow.)

Garlic oil

Crushed garlic, vegetable oil

Put the crushed garlic in the oil. Leave in a warm place for three days. Strain off the garlic. Keep the garlic oil in a cool place. Use for cooking, salads, etc.

Ginger drink

8 cups clean water, 3 teaspoons ginger, 2 teaspoons sugar, 1 small chopped pineapple

Mix all the ingredients and leave in a warm place for a day in a clean and covered container. Drink the ginger juice.

(You can eat the pineapple.)

Ginger tea

Ginger, water

Crush ginger in cold water and boil in water for ten minutes. Place in a covered container, strain the ginger and drink three cups of the liquid per day before meals.

Greens stew

Greens or other vegetables (such as cabbage, pumpkin, squash, green beans, sprouted beans and peas), onions, garlic, ginger, cinnamon, coriander or mild curry powder, cayenne (if you like a hot taste), oil, chopped meat (optional; use bones or mince), water, carrots, tomatoes, potatoes, lemon juice

Chop and fry the onions, garlic and spices over medium heat in a little oil. When onions are brown, add the meat and water. Cook meat at a high temperature until well done and soft. Chop and add the vegetables other than the greens. Cover and simmer until the vegetables are soft. Chop and add the greens ten minutes before the dish is ready. Add lemon juice to help digestion.

High protein stir-fry

Chicken, meat (including liver), fish, oil, onions, garlic, cinnamon, ginger, cloves, any combination of vegetables, water, lemon juice

Heat two tablespoons oil in a pan over medium heat. Cut the meat or fish into small pieces and fry with onions, garlic and spices until brown. Add chopped vegetables and $\frac{1}{4}$ cup water. Cover and turn heat down to low. Cook for five minutes, so that the vegetables are still crisp. Add a squeeze of lemon juice.

Lentil or split pea soup

Dried lentils or split peas, water, vegetables (carrots, potatoes, greens or other), salt, garlic

Soak lentils or split peas in water overnight. Cook until fairly soft. Add chopped vegetables and cook until soft. Add salt and garlic.

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Lentil porridge

Lentils, peanut butter

Roast lentils and pound. Boil the pounded lentils until soft. Add peanut butter and mix.

(You can use cowpeas or beans instead of lentils.)

Liver stew

Liver, garlic, margarine or oil, pumpkin, soup mixture (rice, barley, lentils and split peas), water, thyme, salt, pepper

Cut liver into small pieces and fry with garlic in a little margarine or oil. Add grated pumpkin, soup mixture, water, thyme, salt and pepper. Bring to the boil and simmer for about one hour.

Mixed beans with spinach

Mixed beans, water, salt, onions, garlic, margarine or oil, tomatoes, spinach or other green leaves, pepper

Boil beans. Fry chopped onions and garlic in a little margarine or oil. Add chopped tomatoes, boiled beans and bring to boil. Add chopped spinach or other green leaves and pepper. Cover and simmer slowly until the leaves are soft.

Oatmeal porridge

Oatmeal, milk, butter or margarine, salt, sugar

Cook oatmeal slowly with milk for about 15 minutes. Add a little butter or margarine and a pinch of salt and sugar to taste. Serve warm.

(If you have diarrhoea and/or digestive problems, replace the milk with water and omit or reduce the margarine or butter.)

Peanut sauce with dried fish

2 onions, margarine, ginger, 150 g dried fish, 2 tablespoons peanut butter, 1/2 litre milk, salt, pepper, lemon juice, 1/2 tablespoon brown sugar

Fry the chopped onions in a little margarine. Add ginger and fish and fry for ten minutes. Add peanut butter and stir in milk until thick. Add salt and pepper. Add squeeze of lemon juice and sugar before serving. Eat with rice, maize meal or millet.

Porridge of baobab fruit

Baobab fruit, water or milk, sugar

Break the fruit. Sieve to separate the powder from the seeds and threads. Mix powder with water or milk, boil and simmer for 20 minutes. Add sugar to taste.

Pumpkin soup

Pumpkin or butternut, onion, garlic, cinnamon, oil, water, coconut

Chop the pumpkin or butternut, onion and garlic. Fry the onion, garlic and cinnamon in a little oil. Add the chopped pumpkin. Add water and bring to boil. Simmer until the pumpkin is very soft. Before serving, sprinkle coconut on top.

Pumpkin stew

Pumpkin or butternut, beef

Boil beef with chopped pumpkin until very soft. Mash the pumpkin. Cut the beef into small pieces and add to the pumpkin.

(You can also boil rice, maize meal or millet with the stew to add carbohydrates for more energy.)

Rice and spinach soup

Rice, water, salt, spinach, peanut butter

Add one cup of rice to four cups of salted water. Cover the pot, bring to the boil and cook until soft (about 40 minutes). Add chopped spinach and two tablespoons of peanut butter when the rice is cooked. Stir and cook slowly for a further ten minutes.

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Rice porridge

Rice, salt, cinnamon, sugar

Add one cup of rice to three cups of salted water. Cover the pot, bring to the boil and cook slowly for one hour. Add cinnamon and sugar when serving.

Rice soup

Rice, water, salt

Add one cup of rice to four cups of salted water. Cover the pot, bring to the boil and cook until soft (about 40 minutes).

(Other ingredients can be added and adjusted according to taste and tolerance, e.g. grated carrots, pumpkin, sweet potato or apple; finely chopped garlic and chopped liver.)

Scrambled eggs with greens

Eggs, oil, onions, finely chopped dark leafy greens (or sprouts)

Lightly oil a pan over medium heat. Fry the onions until brown. Add greens and cook for three minutes. Add the eggs and scramble with the other ingredients. Cook until egg is firm.

Simple sprout stir-fry

Legume sprouts, vegetable oil, water, lemon juice (optional)

Put a little oil in a pan, add the sprouts and a small amount of water, cover and cook for about ten minutes. You can squeeze lemon juice over the sprouts.

(You can eat with grains, such as rice, maize, oats, barley, millet or sorghum.)

Sweet potato soup

Sweet potatoes, water, salt, grated cheese, yoghurt

Peel sweet potatoes, cut them in pieces and cook in a little water until soft. Mash them and add more water to make a soup. Add salt, cheese and yoghurt and bring soup to boil, stirring often. Serve.

(If you have diarrhoea, omit the cheese.)

Vegetable stew with meat*Meat, onion, leek, carrots, potatoes, oil, water, garlic, salt, pepper*

Cut meat and vegetables in small pieces. Fry meat until brown, add onion and leek and fry together. Then add the other vegetables, water and chopped garlic and cook until tender. Season to taste with salt and pepper.

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Apple sauce*Apples, water, sugar, cinnamon*

Peel and slice apples and bring to boil with a little water. Cover and cook slowly until tender. Mash apples until smooth and add sugar and cinnamon.

Avocado dip*Mashed avocados, yoghurt or thick sour milk, lemon juice, finely chopped raw onion, garlic and tomato*

Mix all ingredients together.

Banana and papaya milkshake*Banana, papaya, milk, sour milk or yoghurt*

Mash fruit together well or blend in a blender and mix with milk, sour milk or yoghurt.

Cowpea paste*1½ cups boiled cowpeas, water, salt, 1 tablespoon grated onion, 1 teaspoon margarine, 1 tablespoon lemon juice*

Boil the peas in water with a little salt until very soft. Mash to make a smooth paste. Add onion, margarine and lemon juice and mix.

(You can also use bambara nuts or beans.)

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Peanut sauce

1/2 cup finely chopped onions, crushed garlic cloves, 1 1/2 tablespoons oil, 1/2 cup boiling water, 1 cup peanut butter, juice and rind of 1/2 lemon, 1/2 tablespoon grated fresh ginger, honey or sugar, 1/2 teaspoon cayenne (if you like a hot taste), 1 1/2 cups milk

Fry the onions and garlic in oil until brown. Stir in all the other ingredients, except the milk. Cook the sauce over medium heat until smooth. Slowly stir in the milk. Cook for a few more minutes.

Sour cabbage water

Chopped raw cabbage, water

Wash the cabbage and soak one cup cabbage in three cups water. Cover tightly and leave for two to three days. Strain the water from the cabbage, throw the cabbage away and store the water in a cool place or refrigerator. It is ready to drink when it starts to bubble.

Drink 1/2 cup three times a day for all digestive problems.

(You can make a second batch by pouring 1/2 cup of the first batch into the second batch and letting it stand for one day only.)

White sauce

1 tablespoon margarine, 1 tablespoon flour, 1 cup milk or broth (see recipe for beef broth)

Melt margarine in a pan. Remove from heat and blend in flour. Return to heat and stir until cooked. Slowly add milk or broth and whisk until smooth and thick.

TEA FOR COLDS, COUGHS, SORE THROATS AND FLU

For the teas below to have the greatest impact, it is best to prepare them fresh three times a day and drink them hot. However, if this is not possible, prepare them in the morning and heat them up or even drink them cold during the day.

Garlic tea (for sore throats)

Chop 3-4 cloves garlic. Add to one cup boiling water. Boil for ten minutes. Cover and allow to cool. Add honey or sugar to taste. Drink one cup three times a day.

Ginger and cinnamon tea (for chesty colds or coughs)

Add $\frac{1}{2}$ teaspoon chopped fresh ginger to one cup boiling water. Boil slowly for ten minutes. Add $\frac{1}{4}$ teaspoon ground cinnamon. Cover and allow to stand for five minutes. Strain. Drink one cup three times a day. Start drinking the tea as soon as you feel a cold coming.

Guava tea (for a persistent cold)

Add a guava, a squeezed lemon, and an eucalyptus leaf to a cup of boiling water. Cover and allow to stand for five minutes. Drink three times a day.

Lemon tea (for flu)

Squeeze a lemon. Add the juice to $\frac{1}{2}$ cup water that has boiled and cooled slightly. Add sugar or honey to taste. Drink one cup as hot as possible three times a day.

Onion tea (for a blocked and runny nose)

Put $\frac{1}{4}$ onion into a cup of boiling water. Cover and leave for five minutes. Strain. Throw the onion away. Drink one cup three times a day.

Thyme tea (for dry coughs)

Add $\frac{1}{4}$ teaspoon dried thyme leaves to one cup boiling water. Cover and leave for five minutes. Strain. Drink one cup three times a day.

Annex 1 – Recipes and food for a healthy diet

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COUGH SYRUPS

Cough syrup for adults

Mix one part honey with one part lemon juice and one part cane spirit. Shake or stir well. Take one teaspoon three times a day.

(An alternative is to mix one part honey with one part lemon juice. Add two finely chopped garlic cloves. Shake or stir well. Take one teaspoon three times a day.)

Cough syrup for children

Mix one part honey with one part lemon juice and add one part water. Shake or stir well. Give children one teaspoon three times a day.

EXTRACTS FOR SORE THROATS

Use three drops of either extract below on the back of the tongue. This will disinfect the throat. Start using the extract as soon as you feel a sore throat coming. Continue using the drops every two to three hours until you feel no more pain.

(You can also use the extract to prepare cough syrup.)

Eucalyptus extract

Fill a clean empty bottle with eucalyptus leaves. Press them well down with a knitting needle or stick to pack in as many leaves as possible. Fill up with alcohol (40 percent proof). Press again to release any air. Close the bottle. Leave in a dark place for two weeks. Strain before using.

Thyme extract

Use 20 g dried thyme leaves (or one refill packet). Add 100 ml alcohol (40 percent proof). Keep in a closed bottle in a dark place for two weeks. Strain before using.

FEVER

Neem tea

Cut a fresh twig from a neem tree. Remove the leaves and boil the bark in water; the bark can also be chewed.

HOW TO SPROUT SEEDS FOR EATING

Sprouts are seeds that are starting to grow into a new plant.

Advantages of sprouted foods

- They increase the vitamin, mineral and protein content of foods
- They contain many live enzymes that help food to be digested
- They cut down on cooking time
- They are an easy and cheap way to obtain fresh food

Method of sprouting foods

- Put the amount of seed shown in the chart in a jar
- Fill the jar half full with clean and safe water
- Use a tight rubber band to secure cheesecloth or mesh over the jar
- Soak seeds overnight (or as shown in the chart)
- Drain water
- Put the jar down at an angle so that the water can drain off (a dish rack is perfect for this)
- Keep the jar in the dark until sprouting begins
- Rinse the sprouts to remove the shells twice a day, with clean and safe water, morning and evening; if it is very hot, rinse more often
- Place in a cool place or refrigerator ready to eat
- Eat the sprouts after the length of time shown in the chart

Grow different kinds of sprouts such as alfalfa, beans, lentils, peas, sorghum and sunflower; but grow them in different jars, since they need different times to sprout. All sprouts can be eaten raw in salads, sandwiches and in scrambled eggs, for example, and can be cooked in stews and soups.

Annex 1 – Recipes and food for a healthy diet

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Sprouting chart

Type of seed	Amount of seed per jar	Time to soak seeds	Approximate time until ready to eat	Length of sprout when ready to eat
Alfalfa	3-4 tablespoons	4 hours	4-6 days or until seeds develop green leaves	3 cm
Beans	1 cup	Overnight	4-7 days	1 cm
Groundnuts/peanuts (whole)	1 cup	Overnight	1-2 days	Swell, do not sprout
Lentils	1 cup	Overnight	2-5 days	1/2-1 cm
Maize	1 cup	Overnight	3-4 days	1 cm
Peas	1 cup	Overnight	2-5 days	1 cm
Sorghum or millet	1 cup	Overnight	2-3 days	1/2 cm
Sunflower (without husks)	1 cup	Overnight	1-3 days	1/2-1 cm

Annex 2

Form to monitor food intake over one week

This form can help you to monitor your food intake. Fill it in carefully every day, noting the amount you eat each time. List all the amounts of food you eat daily for every day of the week. Review the form or discuss it with your nutritionist, doctor, nurse, local health worker or counsellor after one week. Compare the sheets from week to week to see if you are eating less from one week to another. This will help you to see if your food intake is going down, even if you do not feel that you are eating less. If you find that you are eating less, identify the reasons (e.g. diarrhoea, sore mouth, feeling weak) and follow the guidelines provided to increase your food intake.

Annex 2 – Form to monitor food intake over one week

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Meal	Breakfast 7 am	Snack 10 am	Lunch 1 pm	Snack 4 pm	Supper 7 pm	Bedtime 10 pm
Monday						
Tuesday						
Wednesday						
Thursday						
Friday						
Saturday						
Sunday						

Annex 3

Important vitamins and minerals for people living with HIV/AIDS

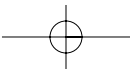
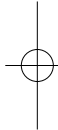
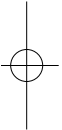
Micronutrient	Role	Source
Vitamin A	Makes white blood cells – essential for vision, healthy skin and mucosa, teeth and bone development. Protects against infection associated with accelerated HIV progression, increased adult mortality, increased mother to child transmission, higher infant mortality and child growth failure	All yellow and orange fruit and vegetables, dark green leafy vegetables, alfalfa, liver, oily fish, dairy products and egg yolks
Thiamine Vitamin B₁	Important for energy metabolism, supports appetite and nervous system functions	Whole-grain cereals, beans, meat and poultry and fish
Riboflavin Vitamin B₂	Important for energy metabolism, supports normal vision, health and integrity of skin	Milk, yoghurt, meat, green leaves and whole-grain cereals
Niacin Vitamin B₃	Essential for energy metabolism, supports health and integrity of skin, nervous and digestive systems	Milk, fish, eggs, meat, poultry, peanuts, whole-grain cereals
Vitamin B₆	Facilitates metabolism and absorption of fats and proteins, helps to make red blood cells	Sweet potatoes, white beans, maize, avocados, cabbage, whole-grain cereals, seeds, Brazil nuts, walnuts, eggs, leafy green vegetables, alfalfa, bananas, legumes, meat and fish
Folate	Required for building new cells, especially red blood cells and gastrointestinal cells	Liver, red meat, green leafy vegetables, fish, oysters, legumes, groundnuts, oilseeds, whole-grain cereals, egg yolks and avocados
Vitamin B₁₂	Important for new cell development and maintenance of the nerve cells	Red meat, fish, poultry, seafood, sardines, cheese, eggs, milk, whole-grain cereals and seaweed

Annex 3 – Important vitamins and minerals for people living with HIV/AIDS

LIVING WELL WITH HIV/AIDS – a manual on nutritional care and support for people living with HIV/AIDS

Vitamin C	Helps the body to use calcium and other nutrients to build bones and blood vessel walls. Increases non-haem iron absorption. Increases resistance to infection and acts as an antioxidant. Important for protein metabolism	Citrus fruits (such as baobab, guava, oranges and lemons), cabbage, green leaves, tomatoes, sweet peppers, potatoes, yams and cooking plantains. Vitamin C is lost when food is cut up, reheated or left standing after cooking
Vitamin E	Protects cell structures and facilitates resistance to disease	Leafy vegetables, vegetable oils, peanuts, egg yolks, dark green vegetables, nuts and seeds, whole-grain cereals
Calcium	Builds strong teeth and bones. Aids heart and muscle functions, blood clotting and pressure and immune defences	Milk, green leaves, shrimps, dried fish (with bones), nuts, beans and peas
Iodine	Ensures the development and proper functioning of the brain and the nervous system	Fish, seafood, milk and salt with iodine
Iron	Transports oxygen to the blood, eliminates old red blood cells and builds new cells	Red meat, poultry, liver, fish, seafood, eggs, peanuts, beans, some cereals, green leafy vegetables, seeds, whole-grain cereals, dried fruit and alfalfa
Magnesium	Strengthens the muscles and is important for proper functioning of the nervous system. Involved in bone development and teeth maintenance	Cereals, dark green vegetables, seafood, nuts and legumes
Selenium	Prevents impairment of the heart muscle	Seafood, liver, meat, carrots, onions, milk, garlic, alfalfa, mushrooms and whole-grain cereals
Zinc	Reinforces the immune system, facilitates digestion and transports vitamin A	Meat, chicken, fish, cereals, leafy green vegetables, seafood, oysters, nuts, pumpkin seeds, milk, liver, whole-grain cereals, egg yolks, garlic and legumes

Source: Adapted from Network of African people living with HIV/AIDS [NAP +] (1996).



Annex 5

Institutions and organizations providing support to people living with HIV/AIDS

The main purpose of this annex is to set down local contacts for people living with HIV/AIDS, by identifying local organizations and institutions working in the area of HIV/AIDS, specifically providing support to people living with HIV/AIDS. A comprehensive list should include organizations working at the local level and with communities and government and non-governmental organizations (NGOs) that provide assistance. A good start in identifying these organizations might be made at the workshop for adaptation of the present guidelines into national guidelines as suggested in the first chapter of this manual. A helpful contact point for collecting this information might also be the United Nations Development Assistance Framework (UNDAF) thematic group working on HIV/AIDS, if this exists in your country. To find out, contact the main government department responsible for work on HIV/AIDS, such as the ministry of social welfare or HIV/AIDS council, if there is one, and ask about working groups on HIV/AIDS.

The following should be included

- Organizations providing general information on HIV/AIDS, working with HIV/AIDS at the national level and in specific areas
- AIDS testing, training, information and counselling centres (in the different regions of a country)
- Organizations working with children with HIV/AIDS
- Organizations working with homosexuals
- Hospices and institutions for residential care for people with HIV/AIDS
- Organizations working on national and local HIV/AIDS programmes providing information and assistance

International contacts

- AIDS Community Research Initiative of America (ACRIA) (www.criany.org)
- Centre for Disease Control National Prevention Information Network (CDCNPIN) (www.cdcnpin.org)
- Joint United Nations Programme on HIV/AIDS (UNAIDS) (www.unaids.org)

Annex 5 – Institutions and organizations providing support to people living with HIV/AIDS

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- Food and Agriculture Organization of the United Nations (FAO) – Food and Nutrition Division (www.fao.org/es/ESN/Communit.htm)
- World Health Organization (WHO) – Department of HIV/AIDS (www.who.int/HIV_AIDS/first.html)

Annex 6

Bibliography
and sources

There may be a number of ongoing activities in your country that have already developed information and literature on HIV/AIDS testing and counselling, care, nutritional management and alternative approaches for people living with HIV/AIDS. The institutions and organizations working in the area of HIV/AIDS should be able to provide advice.

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Annex 7

Glossary

Absorption	The process whereby nutrients pass into the bloodstream for use by the body
AIDS	Acquired immunodeficiency syndrome. A group of diseases caused by HIV
ARV	Anti-retroviral – the name given to a group of drugs that act on the HIV virus and prevent it from reproducing itself in the body
Candida	The name of a fungus that causes oral thrush – a common infection of the mouth in people with AIDS
Constipation	A condition when the bowels do not function properly and a person has difficulty in passing stools (defecating). This may be caused by a diet low in fibre, a symptom of illness or a side-effect of medicines
Counselling	HIV/AIDS counselling is a dialogue between a client and a care provider aimed at enabling the client to cope with stress and take personal decisions relating to HIV/AIDS. The counselling process includes the evaluation of personal risk of HIV transmission and the facilitation of preventive behaviour
Dehydration	The excessive unhealthy loss of water and salts from the body, often during diarrhoea
Diarrhoea	The frequent passing of watery faeces (stools) – at least three in a day
Digestion	The process in the stomach and intestine in which food is broken down and nutrients released
Food security	A situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life

Healthy and balanced diet	Consuming a mix of foods including staples, legumes, beans, animal products, fruit, vegetables, fat and oils and sugar and sugary foods
HIV	Human immunodeficiency virus – the cause of AIDS
Immune system	All the mechanisms that act to defend the body against external agents, particularly microbes (viruses, bacteria, fungi and parasites)
Malnutrition	An abnormal physiological condition caused by deficiencies, excesses or imbalances in energy, protein and/or other nutrients. Malnutrition in this publication refers to: a) lack of food energy (undernutrition); and b) lack of nutrients
Micronutrients	The vitamins, minerals and certain other substances that are required by the body in small amounts. They are measured in milligrams or micrograms
Nausea	Feeling unwell and sick in the stomach
Nutrient	Nourishing substance contained in foods that is released during digestion
Nutrition	The science of food and how it is used by our bodies to grow, work, play, maintain health and resist disease
Nutrition education	Education directed at individuals, families and communities in order to encourage informed decision-making in the selection of foods to grow, purchase and consume in order to achieve optimal health
Opportunistic infection	An infection with a micro-organism that does not ordinarily cause disease, but that becomes pathogenic in a person whose immune system is impaired, as by HIV infection
Oral rehydration solution (ORS)	A liquid that can be given to people to restore the fluid that they have lost through diarrhoea. ORS can be made from packets, by mixing salt, sugar and water or by making a watery porridge from powdered cereals such as rice and maize

Palliative drugs	Medicines that relieve the symptoms of HIV and help a person feel better but do not treat the actual HIV infection
People living with HIV/AIDS (PLWHA)	A general term for all people infected with HIV, whether or not they are showing any symptoms of infection
Positive living	An approach to life whereby people with HIV/AIDS maintain a positive attitude towards themselves, take action to improve their situation, continue to work and lead a normal life and approach the future positively with hope and determination and not with despair, depression, guilt and self pity
Refined cereals	Foods containing cereals such as wheat, rice or maize that have been processed to remove all or part of the husks. Refined foods are low in fibre
Staple foods	Foods that form the main part of the diet, usually cereals such as maize, rice, wheat and millet or root crops, such as yams, cassava and potatoes
Virus	Infectious agent (microbe) responsible for numerous diseases in all living beings. It is an extremely small particle and, in contrast with bacteria, can only survive and multiply within a living cell at the expense of that cell
Vitamins	A group of naturally occurring substances that are the micronutrients needed in small amounts by the body to maintain health