

Chapter 19

**Nutrition**

**Overview**

When addressing the nutritional needs and deficits caused by HIV/AIDS, it must be remembered that many people in Africa are undernourished because of poverty even before they become infected with HIV. They are already disadvantaged not only because undernutrition compromises immunity but because poverty prevents them from acquiring appropriate diet and accessing treatment. Even when they can access medications, they may be unable to take them properly if, for example, the medicine should be taken with food. In many areas of Africa, caring for people living with HIV/AIDS requires dealing with the underlying problems of poverty, food security and lack of adequate, appropriate diet.

Good nutrition is essential for achieving and preserving health while helping the body to protect itself from infections. In addition, a well balanced diet is essential to make up for the loss of energy and nutrients caused by infections. Providing quality care and support requires addressing the nutritional needs of people with HIV at all stages of the disease. Because good nutrition can contribute a person's well-being at all stages of the illness and may prolong life, it is an important part of holistic palliative care.

A number of complex interactions are at work when people with HIV/AIDS experience weight loss. Maintaining normal body weight and intervening early in the event of weight loss contribute to keeping a person healthy longer. Key measures include reinforcing the importance of eating a well-balanced diet, assuring financial assistance or food supplementation for families with inadequate resources, and providing nutritional supplementation to those with weight loss through vitamins and minerals and enriched maize-based supplements. We should also not lose sight of the importance of normal social interactions, as experienced through the sharing of meals, in providing psychological support for the person with HIV/AIDS.

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## Nutritional Status and HIV/AIDS

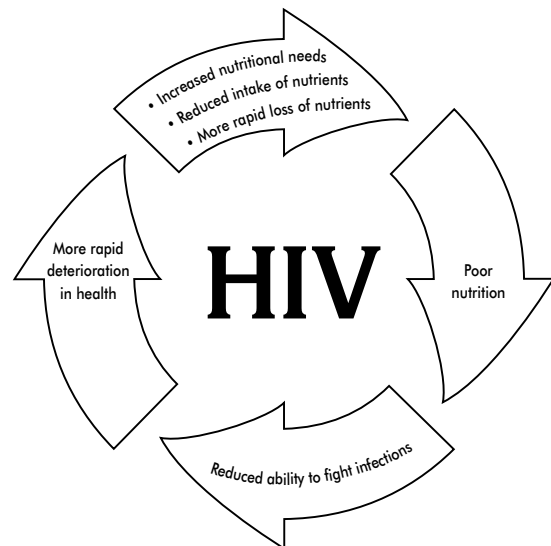
### *The Cycle of HIV/AIDS and Poor Nutrition*

HIV disease increases energy requirements through increases in resting energy expenditure, reductions in food intake, nutrient malabsorption and loss, and complex metabolic changes that result in weight loss and wasting (see Figure 19.1). Repeated illnesses and/or nutritional deficiencies suppress the immune system and make the individual more susceptible to severe infections and/or malnutrition, accelerating the progression of the disease and reducing survival. HIV/AIDS further complicates and reinforces this downward spiral (UNDP, 2003; Uys, 2003).

The link between pre-existing malnutrition and disease progression is difficult to study and knowledge is still limited. Although further studies are required, research to date demonstrates that weight loss and wasting are associated with increased risk of opportunistic infections (OIs) and shorter survival time in people with HIV disease independent of the status of their immune systems. It has also been shown that clinical outcome is poorer and death risk higher in people with HIV who have compromised micronutrient intake. Findings of a recent study in Uganda illustrate well the rapid body weight responses of clients with HIV to household food supplementation (Kim, 2003) (see Box 19.1). In short, malnutrition can both contribute to and result from the progression of HIV disease.

Although there may be few health problems early in HIV infection, a good diet during this time can boost the immune system and keep the person healthy for longer. Once OIs appear, it is even more important to watch the diet since there is a greater risk of nutritional deficiencies which can lead to deterioration in the patient's immune status and a more rapid decline to full-blown AIDS.

**Figure 19.1:**  
**Cycle of HIV/AIDS and Poor Nutrition**



*Source: Adapted from South Africa National Guidelines (South Africa Department of Health, 2001)*

Nutritional status, especially maintaining protein stores, is important to a person's ability to survive. Death is likely to occur when a person loses 54% of his or her normal body cell mass, regardless of the presence or absence of OIs (Steenkamp, 2001).

Studies have shown that OIs are more common in people with nutritional depletion. The availability of antiretroviral therapy (ART) in some parts of Africa has impacted positively on AIDS morbidity and mortality. While patients on ART are less likely to develop OIs, they still experience wasting syndrome at the same levels.

Poor nutritional status impairs a person's productivity including the ability to produce food or do other work. With worsening poverty, HIV transmission is exacerbated through survival sex, inferior health care, increased labour migration, and the associated risk of having multiple partners. Individuals and families therefore lose their ability to acquire food and meet other basic needs. Moreover, poverty-linked malnutrition contributes to an earlier onset of AIDS and increases the likelihood of OIs.

**Box 19.1:**

**The Benefits of a Food Programme: Reach Out Clinic-Mbuya Parish World Food Programme Recipients' Weight Gain Over 1 Year**

In Kampala, Uganda, the medical records of 100 clients in the World Food Programme (WFP) were reviewed (Kim, 2003). Of the 100, 85 were alive at one year. Of those 85, 35 (41%) had HIV, 49 (58%) had HIV and TB, and one (1%) had TB alone.

The weight trends among the 85 were recorded prior to receiving food and at 3, 6, and 12 months after joining the program. The food disbursed was based on a family size of five, and was intended to comprise 50% of the family's food needs. The food included: maize meal (25 kg every 24 days); beans (25 kg every 45 days); corn-soya blend flour with micronutrient fortification (25 kg every three months); and cooking oil (4 L every two months). In the 4 months prior to the initiation of food distribution, clients lost an average of 0.1 kg. At 12 months, all groups demonstrated an average weight gain of 2.5 kg. However, the most marked improvement in weight gain was observed in the clients with both HIV and TB, whose weight gain at 12 months was 3.0 kg.

**Types of HIV-related Malnutrition**

Two types of malnutrition result in wasting in HIV/AIDS:

**Starvation-related wasting** results from voluntary or involuntary reduction in food intake and can be reversed by increasing food intake on recovering from an OI.

**Cachexia-related wasting** results from alterations in metabolism and responds poorly to increased food intake. What is known about cancer-related cachexia may assist in developing effective interventions in AIDS-related cachexia.

Three sets of factors cause nutritional problems for persons with HIV (see Table 19.1). The cycle of HIV/AIDS and poor nutrition can be broken by an awareness of HIV status and an understanding of good nutrition and food hygiene. It is important to recognise and treat infections early and to increase food intake on recovering from an illness.

**Table 19.1: Reasons for Poor Nutrition and Increased Risk of Malnutrition in HIV/AIDS**

HIV/AIDS Increases the Need for Food	HIV/AIDS Lowers the Intake of Food	HIV/AIDS Causes Problems with Food Eaten
<p>Because of the presence of the virus in the body, the immune system uses more energy to fight the infection.</p> <p>The person is worried, which increases the need for food.</p>	<p>General poor health decreases the appetite.</p> <p>Mouth and throat infections cause difficulties in eating.</p> <p>Medication may have side effects such as nausea, vomiting, loss or change of taste, loss of appetite, and diarrhea.</p> <p>Some medications, such as ART, can cause metabolic side effects resulting in increased risk for nutrition-related conditions such as heart and bone disease.</p> <p>People are too tired to prepare meals.</p> <p>Lack of income limits food availability.</p> <p>Depression and anxiety decrease the appetite.</p>	<p>Infections of the gastro-intestinal tract limit the body's ability to absorb food.</p> <p>Nutrients are lost or poorly absorbed if the person has recurrent/chronic diarrhoea.</p> <p>HIV disease causes changes in the way the body uses nutrients it receives or has stored.</p>

Source: Adapted from South Africa Department of Health, 2001.

### ***Nutritional Interventions at Each Stage of HIV Disease***

Each stage of HIV disease has significant nutritional implications and consequences for the person living with HIV (see Table 3.2 in Chapter 3: Principles of Clinical Assessment). Because good nutrition can contribute a person's well-being at all stages of the illness and may prolong life, it is an important part of holistic palliative care. The goals of nutrition care vary at different stages of HIV disease, from asymptomatic HIV through full-blown AIDS and after death for surviving family members.

**WHO Stage 1:** The person with HIV is generally well at this stage, with good performance status. The goal of nutrition at this stage is to maintain body weight and the ability to fight infections with a normal, healthy eating pattern. It is important to ensure a steady food supply while the individual is still healthy. This may include planting a vegetable garden and making sure someone is there when the person with HIV can no longer maintain it. Obtaining food rations may be important in food insecure areas and for nutritionally vulnerable pregnant and lactating women. Another important early measure is establishing healthy eating habits, with a wide variety of foods—including food from all the food groups. Health care workers (HCWs) should provide patients with advice and support to maintain a steady weight and to prevent food and water-borne infection. Patients' weight should be checked at least every two months (MOH Uganda).

**WHO Stage 2:** Although at Stage 2 there is usually loss of less than 10% of body weight, there may be mouth infections that affect nutrition and diarrhoea that may decrease absorption of nutrients. Patients also may experience nausea and loss of appetite. It is important to treat the problems that cause decreased intake of nutrients early, and it may be necessary to encourage patients to adjust eating habits as described later in the chapter. This includes counselling to manage the common nutrition-related symptoms of HIV and OIs.

**WHO Stages 3 and 4:** At these stages, weight loss and wasting become serious problems and diarrhoea occurs more frequently and for longer periods. Patients may need special foods prepared and food supplements. Therapeutic feeding should be considered for moderately and severely malnourished adults and children. This is a time when finances may be a problem because the person can no longer work and needs assistance in self care, including food preparation. Patients in stages 3 and 4 would benefit from the advice of a dietician/nutritionist where this service is available. In addition the side effects of ART and other medicines should be managed.

***For clients with a weight loss of more than 10% in the last 3 months, assess their diet (type and intake) and history of illness and take appropriate action.***

## Providing Basic Nutritional Support

### *The Basics of Good Nutrition*

Nutritional needs vary with sex, age and disease status. Some comparative average nutritional needs (WHO, 2003) include:

- Adult men: 2,430 Kcal/day
- Adult women: 2,170 Kcal/day
- Pregnant women: 2,460 Kcal/day
- Lactating women: 2,570 kcal/day
- Protein intake: 1–2g of protein per kg of normal body weight.
- Asymptomatic people with HIV (those who do not have symptoms): 10% more energy than HIV-negative individuals of the same age, sex and physical activity level (i.e., 200–300 additional Kcal)
- Symptomatic people with HIV/AIDS: 20–30% more energy per day than HIV-negative individuals of the same age, sex and physical activity level
- Patients on ART: energy requirements remain the same

HIV-positive adults may also require increased proteins and micronutrients, but research has not yet proven this. The energy requirements remain the same whether or not a person is on ART.

Good nutrition benefits the health of the person with HIV and promotes a sense of well-being. Nutrition counselling, care, and support are integral to comprehensive HIV care. HCWs should provide the following basic nutritional advice to all people with HIV/AIDS, which applies to children, adolescents (see also Table 19.2):

**Comfort:** Choose food guided by the person's normal diet and culture.

**Quantity of food:** Increase the amount of food eaten — people with HIV/AIDS should eat more than their usual amount of food.

**Frequency of meals:** Increase the number of times they eat throughout the day (small frequent meals, nutritious snacks between meals).

**Coordination with medicines:** Suggest for families to make meal plans taking into account whether medication is being taken or infections present.

**Variety:** Choose a wide selection of foods so that all essential nutrients are included in the diet. No single food contains all the nutrients needed (breast milk is the only complete food, containing the combination and quantities needed for a young baby).

**Supplementation:** Advise patients on the use of nutritional supplementation to complement their usual diet if appropriate (see section below).

**Starches:** Make starches the basis of each meal—e.g., bread, porridge, pap, rice, potatoes, samp, millet, sorghum, and pasta. These foods are relatively cheap and supply a lot of energy.

**Unprocessed foods:** Use unrefined, unprocessed foods, whole-wheat bread, unpolished rice, and stone-ground maize meal. These foods are more nutritious than refined foods. Avoid stimulants, colourants, and preservatives.

**Uncooked fruits and vegetables:** Eat raw vegetables and fruit as they provide more vitamins and minerals—and hence are more nutritious—than cooked vegetables. Make sure that they are washed properly to remove pathogens. A variety of fruit and vegetables will ensure that most vitamins are included in the diet.

**Protein:** Add protein in the form of beans, lentils, peas, peanuts, soya, chicken, and fish. These are low in fat but provide the basic amino acids for repair of muscle and body tissues.

**Energy foods:** Sugars, fats, and oils provide a rich source of energy. Increase fat and sugar intake if a person is losing weight, though eating a lot of fat in the late stage of HIV infection can cause diarrhoea.

**Alcohol:** Avoid alcohol since it damages the liver and interferes with the absorption of nutrients. For patients who take medication, the combination of alcohol and their medicines may be unhealthy for the liver.

**Dairy products:** Eat yoghurt, milk, and other dairy products frequently. Eggs in particular are highly nutritious.

**Exercise:** Be as active as possible. Exercise will help to maintain muscle bulk and strength (if after exercises muscle loss persists refer to a doctor).

**Water and other fluids:** Drink lots of clean, safe water (at least eight glasses of water/day). This is especially important to replace fluids lost through vomiting or diarrhoea or illness that causes fever and sweating. If local tap water is not safe to drink, or if using water from a well, river, or borehole, boil and then cool water before use. Take cold drinks, fruit juices, and other beverages through the day.

**Low-cost, healthy foods:** Include low-cost, healthy foods such as potatoes, groundnuts, beans, and sim sim (sesame seeds), local in-season fruit and vegetables, fruit juices, and soya foods.

**HCWs Can Also Provide Other Advice to Patients and Their Families:**

- Provide access to information on nutrition (advice, pamphlets, literature).
- Advise patients to get dewormed twice a year.
- Encourage patients to have a positive attitude towards the illness and life.
- Counsel patients to seek prompt treatment for all health problems. Early identification and treatment of symptoms or conditions affecting a person's appetite or ability to eat can improve nutritional status.
- Refer people with HIV/AIDS to organizations/ services that offer care and support such as nutrition, medical care, and psychosocial, economic, and spiritual support (such as TASO in Uganda).
- Advise caregivers to regularly supervise the ill person's meals to ensure adequate food consumption, especially if the person is elderly.

- Counsel families to practice food and water safety and personal hygiene (e.g., wash hands before handling food, thoroughly cook meat products).
- Suggest food supplements such as 'e' pap and Nutrimeal (maize-based supplements enriched with protein, vitamins, and minerals) as useful and affordable options.
- Be aware that some medications can interact with some nutrients, reducing their efficiency (e.g., the antibiotic tetracycline inhibits absorption of calcium, magnesium, zinc, and iron).
- Use national guidelines, if available, in providing nutritional care and support.

**Assessment for Nutritional Support**

A basic nutritional assessment should include:

**History:** body weight changes, changes in dietary intake, symptoms and treatments, monitor medication, performance status, exercise habits

**Examination:** weight, Body Mass Index (BMI)—normal BMI = 25–29

Based on the findings, nutritional support involves following up with:

**Advice:** dietary advice, nutritional counselling, nutritional support, food hygiene, social assistance in obtaining food assistance

**Treatment:** Vitamin and mineral supplements, nutritional supplements ('e' pap or Nutrimeal)

**Documentation:** Keep accurate records including weights, food intake (frequency and diversity), symptoms, and treatments

**Table 19.2: Functions of Some Important Food Groups**

Food Group	Function	Sources Include	Comment
Water	Transport medium, fluid medium for chemical reactions, excretion, lubrication	Water (boiled, filtered, or mineral), tea, soups, milk, juices, and fruits	Tea, coffee, alcohol can interfere with absorption of nutrients and may interact poorly with medicines.
Carbohydrates	Energy source, energy stores	Staples and sugars: potatoes, sweet potatoes, cassava, rice, wheat, sorghum, millet, yams, posho, bread, porridge	Staples form the main part of a meal and are cheap and readily available. May also provide some protein, vitamins, and fiber.
Sugars, sugary foods	Rich energy source	Honey, jam, table/tea sugar, cane, cakes and biscuits, artificial fruit juices, candy, sodas	Be aware organisms such as yeast and moulds can grow in sugary settings.
Fats and oils	Concentrated high-energy source, required for absorption and utilisation of fat-soluble vitamins  Part of the essential structure of cells	Vegetable fat and oils: corn, sim sim, sunflower, shea butter, palm oil, margarine  Animal: lard, butter (including ghee), cheese, fatty meat, and fish (including fish oil)	One gram of fat provides twice the energy of 1 gram of carbohydrate, therefore only need fat in small quantities. Add flavour and taste to food.
Proteins	Promote growth and repair, build the body (especially muscles) and immune system	Plant proteins: beans, peas, lentils, groundnuts, soyabean, sim sim, peanuts, sunflower seeds  Animal: meat, fish, milk and milk products (e.g., cheese, yoghurt), eggs, grasshoppers, white ants	Proteins also provide vitamins and minerals.
Dietary fiber and roughage	For bowel movement and to prevent constipation	Vegetables and fruits	Fiber important for bowel movements but may reduce absorption of some nutrients (e.g., iron, zinc). Take foods rich in fiber with caution if anaemic.
Vitamin C	Recovery from infections, anti-oxidant	Potatoes and yams, cabbage, citrus fruits (guavas, lemons), milk	Vit B group and C are water-soluble and should be eaten regularly as the body does not store them but excretes any excess taken.  Vitamins A, D, E, are fat soluble.  Lack of vitamin A or B6 causes poor skin condition.  B1, B2, B3 are important for energy.  B1 and B3 support appetite and central nervous system function.  B6 needed for metabolism, fat and protein absorption, and red cell formation.  B12 needed for new cell synthesis and to maintain the nervous system.  Vit D is produced by skin in sunlight.
Vitamin A	Skin and mucous membrane integrity	Yellow/orange fruits and vegetables (carrots, sweet potatoes, pawpaw, pumpkin)  Dark green leafy vegetables (DGLV) (dodo, sukuma wiki)  Meat, eggs, liver	
Vitamin B group (B1, B2, B3, B6, B12)	Maintains immune system and nervous system health	Whole grain cereals, legumes (beans), oil seed (e.g., sunflower), avocados, DGLV	
Vitamin E	Boosts the immune system, anti-oxidant	Liver, fish, milk, eggs, meat, chicken  Nuts, DGLV, legumes, pulses, whole cereals, oil seeds, butter, liver, egg yolk, milk	
Vitamin D	Strengthens bones and teeth	Milk, cheese, butter, eggs, liver, fatty fish	
Folic acid (folate)	New cell formation, especially red cells and GI cells	Liver, fish.  DLGV, legumes, oil seeds, ground nuts	
Zinc	Important for the functioning of the immune system and resistance to infections	DLGV, legumes, pulses, whole-grain cereals, mealies, garlic	
Selenium	Activates T-cells, anti-oxidant	Meat, fish  Dairy products, liver, egg yolk, maize, brown rice	
Iron	Builds blood supply	Whole grain food, dairy and protein rich food, DGLV, meat, beans, avocados, fish	

Source: Adapted from Uys, 2003 and from MOH Uganda.

### **Food Supplements**

A healthy, balanced diet usually provides all the required nutrients. Multiple vitamin and mineral supplements may not be easily available, they are expensive, and buying these supplements will leave less money for food. It is therefore better to advise families to provide a good mixed diet rather than buy supplements except when the person with HIV/AIDS is unable to eat or absorb a normal diet.

Where resources permit, when a patient's food intake is low, multivitamins and mineral supplements can help to meet the nutritional requirements. Also, HIV infection can lead to a loss of vitamins and minerals needed by the immune system to fight infections and maintain the immune system. Deficiencies of vitamins A, C, and E (antioxidants) and minerals can result in oxidative stress, a condition that may accelerate immune cell death and increase the rate of HIV replication.

Micronutrients are vitamins and minerals that are needed only in small amounts. Macronutrients, such as carbohydrates, sugars, fats, and proteins, are needed in larger amounts. Studies have highlighted the importance of micronutrients for people with HIV/AIDS (see Table 19.3). For instance, daily micronutrient supplementation was found to increase survival in adults with low CD4 cell count (Jiamton, 2003). There are also reports that excessive doses of vitamin A and zinc have a detrimental effect on survival.

In the African context, it is not practical to measure individual micronutrients. Micronutrients are a part of macronutrient intake in a normal diet, so wasting (macronutrient deficiency) indicates micronutrient deficiency. People with wasting syndrome should use a vitamin and mineral supplement containing 100–200% of the recommended daily allowance (RDA). The optimal formulation of daily multiple micronutrient supplements for people with HIV requires further study, particularly in resource-limited settings where management options and follow-up monitoring may be limited.

### **Supporting the Family After the Patient Dies**

Nutritional support continues to be important for families affected by an HIV-related death (Piwoz, 2004). Key interventions include:

- Counselling on special food and nutritional needs of orphans, vulnerable infants, and young children
- Nutrition supplementation for persons at risk for malnutrition (eg, HIV-exposed children <2 yrs of age who were not breastfed; HIV-exposed children with faltering growth)
- Food interventions to protect the health of orphans and vulnerable children and surviving family members when livelihoods are compromised

**Table 19.3: Relationship Between Micronutrient Levels and HIV Disease Progression and Mortality**

Serum Concentration	Impact on HIV Progression/mortality
Low selenium	Strongly associated with decreased CD4 count and increased mortality
High serum vitamin B12	Increased AIDS-free survival period
Decreased serum retinol	Increased mortality
Low vitamin A, B12, zinc	Significant decrease in CD4 count
High serum vitamin E	Reduced rate of progression
Low zinc	Increased progression

Source: Steenkamp, *Southern African Journal of HIV Medicine*, Dec. 2001. Reprinted with permission

## Nutritional Advice for Specific Dietary Problems

### Diarrhoea

#### *Do's for Diet During Diarrhoea:*

##### *Drink lots of fluids to avoid dehydration*

- Soup, juice, water, black tea
- Between meals rather than with meals
- Avoid carbonated drinks
- Avoid strong citrus (orange/lemon) juices because they may irritate the stomach
- Use the recipe for replacement of water and salt (see Chapter 7: Gastrointestinal Symptoms, on oral rehydration fluid)

##### *Eat more:*

- Starchy foods (oatmeal, potatoes, white rice, corn-soya blend, sweet potatoes)
- Food rich in fibre (millet, peas, lentils, banana) to help retain fluids
- Guava juice
- Salty foods
- Soft fruit and vegetables
- Small meals frequently rather than three large meals.
- Eggs, chicken, or fish for protein
- Boiled or steamed foods, avoiding fried foods

#### *Don'ts for Diet During Diarrhoea:*

##### *Avoid:*

- Dairy products
- Greasy, high-fat food
- High-fibre food
- Sugar
- Food with a laxative effect (e.g., prunes)
- Caffeine and alcohol
- Nicotine

### Constipation

#### *Do's for Diet During Constipation:*

- Eat regular meals to ensure bulk in the gut.
- Include foods that are high in roughage (e.g., raw fruit and vegetables, whole-wheat bread, oats, dried fruit).
- Eat stewed/dried prunes.
- Drink lots of fluids.
- Get regular exercise.

#### *Don'ts for Diet During Constipation:*

##### *Avoid:*

- Laxatives and enemas which cause loss of water and salts
- Delaying going to the toilet.

### Poor Appetite

#### *Do's for Diet When there is Poor Appetite:*

- Eat whenever and whatever you feel like eating.
- Eat smaller, more frequent meals.
- Take exercise.
- Drink high energy drinks such as milk, maas, yoghurt, and mageu (a traditional sour-milk drink).
- Avoid strong-smelling foods

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## Weakness

### *Do's for Diet When Too Tired to Prepare Food:*

- Let others help you by preparing and bringing food.
- Eat fruit and yoghurt.
- Leave food for a bed-fast person in a cooler bag by the bed.
- Use canned or frozen food.

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## Nausea

### *Do's for Diet During Nausea:*

- Take smaller meals or snacks.
- Try cold or chilled foods.
- Eat dry toast, crackers and cereals, and soft fruit like bananas.
- Get someone else to prepare the food.
- Avoid lying down immediately after eating (wait at least 20 minutes).
- Replace lost fluid by taking soups, water, juice, and jelly.
- Drink lemon juice in hot water; drink ginger root (crush ginger in cold water; boil in water for 10 minutes; place in covered container; strain ginger and drink liquid).
- Avoid caffeine (coffee and tea) and alcohol.
- Avoid having an empty stomach — nausea is worse if the stomach is empty.

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## Loss of Taste

### *Do's for Diet During Loss of Taste and/or Abnormal Taste:*

- Use flavour enhancers, salt, spices, herbs and lemon.
- Chew food well and move around in the mouth to stimulate receptors

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## Heartburn

### *Do's for Diet During Bloating and/or Heartburn:*

- Eat small frequent meals.
- Drink fluids but do not drink too much with food.
- Avoid foods such as cabbage, beans, onions that create gas in the stomach.
- Eat long enough before sleeping so food can digest.

## African Issues Related to HIV/AIDS and Nutrition

### *Food Security and Availability*

Food security means having access to adequate amounts of high-quality food throughout the year. This includes not only the ability to produce, purchase, or store food but also adequate knowledge on how to use the food.

For optimum nutrition, people need adequate food security. Food insecurity results from poverty, conflicts, internal displacements, gender imbalances in food allocations and intra-household food distribution, and lack of knowledge. During harvest periods most households in sub-Saharan Africa have a variety of food items in adequate quantities; however, as dry seasons progress, food becomes less varied and families eat less. HIV/AIDS increases the risk of food insecurity due to its impact on productive labour, income, agricultural production, and food stores.

Since the start of the new millennium Malawi, Mozambique, Lesotho, Swaziland, Zambia, and Zimbabwe have all experienced severe food shortages. The challenge of the HIV/AIDS pandemic within such resource-limited countries of southern Africa encompasses much more than just food insecurity. Other major challenges include malnutrition and the poor quality of drinking water, sanitation, health practices, and care standards. These all negatively reinforce each other and increase the inability of most households to effectively cope with the crises. There can be little doubt that in such stressful times food consumption is generally reduced in families, which, if continued, makes them more vulnerable to HIV/AIDS-related infections (UNICEF, 2003).

### *Malawi as a Case Example*

#### **Country Profile**

Malawi is ranked 162 out of 175 countries reviewed on the Human Development Index (see Box 19.2) and has a per capita gross domestic product (GDP) of approximately US\$166 (UNDP, 2003). Sixty-five percent of the population lives below the poverty line of US\$1 per day. Its people are generally dependent on a single crop for their staple food. The most vulnerable households tend to be large (six or more), headed by women (especially elderly women), and have a high dependency ratio (44% are below 16 years, suggesting a high dependency ratio between children and adults).

Up to one million people out of a total population of 11 million are infected with HIV in Malawi, with 30% of them likely to require treatment for OIs and other AIDS-related illnesses. As a chronic illness, HIV/AIDS increases the body's nutritional requirements (UNICEF, 2003). But in Malawi, the reverse tends to occur due to food insecurity. Inadequate intake of food is exacerbated further by poor methods of food preparation, which further reduces the nutritional value.

#### **Box 19.2:**

##### ***The Human Development Index (HDI)***

The HDI is a summary composite index that measures a country's average achievements in three basic aspects of human development: longevity, knowledge, and a decent standard of living. Longevity is measured by life expectancy at birth; knowledge is measured by a combination of the adult literacy rate and the combined primary, secondary, and tertiary gross enrolment ratio; and standard of living by GDP per capita.

**Salima District, Malawi**

The vicious cycle of food insecurity, poverty, and HIV disease is particularly evident in Salima District, where the HDI is 0.275 (UNDP, 2001), where adverse weather has accentuated poverty and famine amongst its communities who generally rely on subsistence farming. Salima District regularly suffers from outbreaks of cholera in the rainy season due to poor sanitation and community wells being contaminated.

Two home-based care programmes in the district serve more than 700 chronically sick clients and more than 2,000 registered orphans. At most, monthly food rations in 2003-2004 from WFP, distributed by Save the Children UK, served about 540 chronically sick clients. In particular, per-household donations amounted to 50 kg maize; 5 kg pulses; 7.5 kg soya corn blend flour; and 4 litres of cooking oil. Often only half of these amounts were available to recipient households due to cuts in the quotas actually supplied to Salima District, misappropriations, or theft (thieves sometimes snatch food, especially from women, whilst it is being carried home).

Even when the full ration is available it may be well below the 2001 recommended minimums for households. Using the national norm for Malawi of six-person households, the whole ration is 31% of the requirements for pulses and 66% of their oil intake needs. Household incomes restrict access to many of the items in each of the food groups available within the district.

***Gender Issues Related To Nutrition*****Gender and Poverty**

Poverty, gender inequality, and HIV/AIDS are closely intertwined (see Box 19.3). Women are not only biologically more susceptible to contracting HIV, they are also faced with significant gaps between what they can access compared to a man (resources, information, knowledge, services, education) and restrictions (decision making, economic freedom/activity). Women typically bear the brunt of multiple roles: productive, reproductive, and community (see Box 19.4). They have the burden of caring (physical and emotional) within the home, ensuring food security (including production of food for household consumption), and maintaining the entire household work. Their roles are time-demanding and almost never finished and largely non-remunerated. Lack of time, the costs of lost time, and the costs of services or transportation have been found to be significant factors to women's low use of health services. Taking time to use services involves not only taking time to travel but waiting to receive services. Moreover, services are usually provided during times that are generally inconvenient for women's work schedules.

Although more women are earning an income today than ever before, the majority are in insecure jobs in the informal sector. Those who are employed in the formal sector continue to earn less than men. Women's economic and social dependency affects their use of services and ability to adhere to treatment. They are encouraged and sometimes forced to ask for permission from their husbands and other family members to access services. Often women will not choose to ask or will be denied, making it less likely they will use services. Even when they do access services they often must consult their husbands or others in order to act upon the recommendations of the service providers, creating another potential barrier to women's adherence to treatment and care regimens.

**Box 19.3:**

**Observations of an African Nurse**

I think gender issues impact heavily on the nutrition of women, girls, and small children. In all the countries I have lived in (Malawi, Zambia, Tanzania, and Uganda), and also on occasional visits to Mozambique, rural women and girls are the tillers of the land producing food for their families and serving the food to their men folk. The men normally sit under the shed of the tree playing Bao or putting their world to right. The men and boys are served the best food (eg, chicken breast), while the women, girls, and small children eat what is left. (In Uganda I came across a custom where women were not allowed to eat chicken or eggs.) If there is not enough food, the woman will go without. They are therefore very vulnerable to malnutrition, especially when they are pregnant or sick with opportunistic infections. This is then the time when women get abandoned by their spouses or partners. I have currently two women under my care who were abandoned by their partners when they became pregnant and fell sick. Both men have never come back to even see the children they fathered. I think they got new partners who are supposedly healthy — they got accustomed to being looked after, so when the women fell sick they moved on.

**Cultural Norms and Women's Nutrition**

Gender and socio-cultural norms often dictate 'men and boys preference'; in times of scarcity, families allocate resources for men and boys first and women and girls later or not at all. For example, in Uganda, men and boys are fed first. Women themselves continue this pattern because of being socialized to sacrifice their own interests. They often put the health of their children and families first and tend to remain silent about their own health problems. They are more likely to wait longer periods of time before seeking treatment for illnesses, and thus they are more likely to be at advanced stages of HIV disease as well as in poor nutritional condition. Even then they are also far less likely to take advantage of whatever treatments are available.

Fear of violence often results in women refusing HIV tests or not returning for their test results. Fear has also been found to prevent women with HIV from following advice on feeding practices to avoid risk of HIV transmission.

**Box 19.4:**

**Gender-Specific Types of Work**

**Reproductive work:** activities carried out to maintain the labour force and well-being of the household members

**Productive work:** activities producing goods and services which can be traded in return for money

**Community roles:** activities performed within a community for the well being of that community.

Men's roles are generally Productive and Community, while women's roles generally encompass all three types of work.

### Reproductive Status and Nutrition

Good nutrition is important for women's health and reproductive role as well as for survival and development of their children. A woman's nutritional status prior to and during pregnancy determines risk of maternal-to-child transmission of HIV and influences her own health. Pregnant and lactating mothers are at a higher risk of malnutrition and mortality due to the extra demands for energy and nutrients required by pregnancy, lactation, and HIV.

In sub-Saharan Africa, many women become pregnant when they are already malnourished. If they are HIV-positive as well, the effects of malnutrition and HIV further increase vulnerability to health dangers associated with pregnancy and childbirth.

### Women as Caregivers

The burden of caring for patients suffering from HIV/AIDS falls mostly on the women and girls in the home. This has been the custom in many of the African countries. Girls are kept home from school in order to care for their ill parents or brothers and sisters. Older women (grandmothers) also carry this burden of care. Volunteer caregivers are often people (most of them women) from organizations such as the churches, support groups, and Red Cross who are already caring for the sick without a great deal of support due to poverty and food scarcity in their own homes and communities. Many times caregiving women and girls are HIV-positive, requiring care themselves in terms of nutrition. As we advocate for male involvement in HIV/AIDS care, it is time we also advocate for changes in practices that are not favourable to women.

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## Suggested Resources

Food and Nutrition Technical Assistance Project (FANTA). Washington DC: Academy for Educational Development. The website is: [http://www.fantaproject.org/focus/hiv\\_aids.shtml](http://www.fantaproject.org/focus/hiv_aids.shtml)

*At this Web site, a wide range of resources on nutrition and HIV in Africa are available, including:*

- *HIV/AIDS: A Guide for Nutritional Care and Support*, 2nd ed.
- *Counseling Materials for Nutritional Care and Support of People Living with HIV/AIDS* (revised April 2005).
- *Nutrition Care and Support for Women Living with HIV/AIDS in West Africa*. Available at: <http://www.fantaproject.org/downloads/pdfs/HIV.pdf>

*Health Care and HIV: Nutritional Guide for Providers and Clients*, 2002. U.S. Department of Health and Human Services, HRSA HIV/AIDS Bureau. <http://www.aidsetc.org/>.

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