# SESSION 6 NUTRITIONAL CARE AND SUPPORT OF PREGNANT OR LACTATING WOMEN AND ADOLESCENT GIRLS INFECTED WITH HIV/AIDS

## Purpose

The purpose of this session is to give students a general understanding of special considerations for nutritional care and support of HIV-infected pregnant or lactating women or adolescent girls.

## Learning objectives

By the end of the session, students will be able to:

- Explain how HIV infection increases the risk of malnutrition in HIV-infected pregnant and lactating women and adolescents in resource-limited settings.
- Describe the essential components for nutrition care of HIV-infected pregnant or lactating women and adolescents.
- Describe the general dietary recommendations for HIV-infected pregnant or lactating women and adolescents.
- Make appropriate recommendations for nutritional care and support of HIV-infected pregnant or lactating women and adolescents.
- List factors to consider when planning nutritional care and support for HIV-infected pregnant or lactating adolescents.
- Explain the challenges HIV-infected pregnant and lactating women face that increase their risk for malnutrition.

## Prerequisite knowledge

- Understanding of nutrition through the life cycle, maternal nutrition, including nutrition during normal and healthy pregnancy and lactation, and adolescent nutrition

- Basic counseling skills

## Estimated time: 120 minutes

## Outline

| Content | Methodology | Timing |
|---|---|---|
| 1. Why focus on women, nutrition and HIV?<br>• High proportion of women affected and infected by HIV in sub-Saharan Africa<br>• Likelihood of poorer quality care<br>• Social, economic, and biological factors associated with the health of the woman, reproductive performance, and nutritional stress | Facilitate an interactive lecture using **PowerPoint 6** presentation<br><br>Use questions and answers to help students master concepts | 110 minutes |
| 2. Nutritional requirements for the HIV-infected pregnant or lactating woman<br>• Increased nutrient and energy needs with HIV infection<br>• Gaps in knowledge and programming needs<br>3. General nutritional recommendations of WHO and the role of nutritional care and support for the HIV-infected pregnant or lactating woman and adolescent<br>• Meeting increased nutrient demands and preventing negative implications for the health of the mother or the baby<br>• Practical considerations and limitations in optimizing women's nutrition<br>4. Goals of nutritional care and support for the HIV-infected pregnant or lactating woman and adolescent<br>• Attaining and maintaining good nutrition and preventing malnutrition<br>• Preventing risks of illness and decreased food intake | Discuss the practical considerations within each subheading<br><br>Distribute **Handouts 6.1 and 6.2**. Use **Exercise 6** to role-play and assess some key actions discussed<br><br>Distribute **Handouts 6.3-6.7** and review | |

| Content | Methodology | Timing |
|---|---|---|
| 5. Components of nutritional care and support for the HIV-infected pregnant or lactating woman<br>• Nutritional assessment<br>• Nutritional education and counseling<br>• Promotion of food safety and hygiene<br>• Physical activity<br>• Safer sex<br>• Psychosocial support<br>• Symptom-based management<br>• Access to ARV therapy<br>6. Issues and challenges in nutritional care and support of HIV-infected pregnant and lactating women and adolescent girls<br>• Challenges in providing optimum nutrition to these groups<br>• Access to and use of VCT<br>• Social stigma and discrimination<br>• Access to food in terms of quantity and quality<br>• Gender issues<br>• Quality of health and nutrition care (including counseling) | | |
| 7. Discussion of presentation | Use **Discussions Points 6** to raise issues in the class or in small groups.<br>Organize a **field visit** if time permits | 10 minutes |

## Required materials

- LCD or overhead projector
- Flipchart stand and paper
- Writing pens

## Recommended preparation

- Be familiar with **Lecture Notes 6**: Nutritional Care and Support of Pregnant or Lactating Women and Adolescent Girls Infected with HIV/AIDS.

- Allocate time for each activity considering students' background and the coverage of the content elsewhere.

- Look through **Discussion Points 6** to identify relevant questions to help students master the concepts. Consider facilitating a group discussion if time permits.

- Prepare to divide class into pairs for **Exercise 6**, which includes a field visit and role-plays on counseling pregnant and lactating women in areas of high HIV prevalence.

- For the purpose of this manual, names for the role-plays were selected arbitrarily. Modify the names and any other aspects (e.g., foods described) in the following case-studies as appropriate for country and community contexts.

## Materials provided

### PowerPoint Presentations

- **PowerPoint 6**/overhead presentation: Nutritional Care and Support of Pregnant or Lactating Women and Adolescent Girls Infected with HIV/AIDS

### Handouts

- **Handout 6.1**: Essential Nutrition Health Sector Actions to Improve Maternal Nutrition in Africa

- **Handout 6.2**: A Guide for Nutritional Assessment for People Living with HIV/AIDS

- **Handout 6.3**: Checklist for Nutritional Assessment of Women Infected with HIV

- **Handout 6.4**: Practical Considerations for Counseling

- **Handout 6.5**: Checklist for Assessing Counseling of Pregnant or Lactating Women with HIV/AIDS

- **Handout 6.6**: Safe Food Handling Practices

- **Handout 6.7**: Nutritional Management of Common Problems in HIV/AIDS

- **Discussion Points**: Class questions for reflection and discussion

- **Class Exercises**: Role-plays and field visit

## Suggested reading materials


American Dietetic Association and Dietitians of Canada. 2000. Manual of clinical dietetics. Sixth edition. Chicago, Illinois: American Dietetic Association.

Coutsoudis A, K Pillay, et al. 1999. Randomized trial testing the effect of vitamin A supplementation on pregnancy outcomes and early mother-to-child HIV-1 transmission in Durban, South Africa. South African Vitamin A Study Group. *AIDS* 13: 1517-24.

Coutsoudis A, et al. 2001. Are HIV-infected women who breastfeed at increased risk of mortality? *AIDS* 15: 653-55.

Dreyfuss, ML, and WW Fawzi. 2002. Micronutrients and vertical transmission of HIV-1. *Am J Clin Nutr* 75: 959-70.

Fawzi, WW, et al. 2002. Randomized trial of vitamin A supplements in relation to transmission of HIV-1 through breastfeeding and early child mortality. *AIDS* 16(14): 1935-44.

———. 2000. Randomized trial of vitamin supplements in relation to vertical transmission of HIV-1 in Tanzania. *J Acquir Immune Defic Syndr* 23: 246-54.

———. 1998. Randomised trial of effects of vitamin supplementation on pregnancy outcomes and T-cell counts in HIV-1 infected women in Tanzania. *Lancet* 351: 1477-82.

Fields-Gardner, C, et al. 1997. A clinician's guide to nutrition in HIV and AIDS. Chicago, Illinois: American Dietetic Association.

Gorduek, V, et al. 2001. Iron status and the outcome of HIV infection: An overview. *J Clinical Virology* 20: 111-15.

Huffman, S, et al. 2001. Essential health sector actions to improve maternal nutrition in Africa. Washington, DC: LINKAGES Project, Academy for Educational Development.

Institute of Medicine, National Academy of Sciences. 1990. Nutrition during pregnancy. Washington, DC: National Academy Press.

Levine, A, et al. 2001. Prevalence and correlates of anemia in a large cohort of HIV-infected women: Women's interagency HIV study. *J Acquir Immune Defic Syndr* 26: 28-35.

Lwanga, D. 2001. Clinical care of HIV-infected women in resource poor settings: Nutritional care and support. Baltimore, MD: Johns Hopkins Program on International Education for Obstetrics and Gynecology (JHEPIGO). CD-ROM tutorial.

Lwanga, D, and E Piwoz. 2001. Nutrition care and support for women living with HIV/AIDS in West Africa. Technical update: Women and adolescent nutrition, West Africa Nutrition Focal Point Meeting, 2001.

Nduati R, et al. 2001. Effect of breastfeeding on mortality among HIV-1 infected women: A randomised trial. *Lancet* 357: 1651-55.

———. 1995. Human immunodeficiency virus type-1-infected cells in breastmilk: Association with immunosuppression and vitamin A deficiency. *J Infect Dis* 172: 1461-68.

Piwoz, E, and E Preble. HIV/AIDS and nutrition: A review of the literature and recommendations for nutritional care and support in sub-Saharan Africa, Washington, DC: SARA Project, Academy for Educational Development.

Samba-Ndure, K. 2001. Women's nutrition during pregnancy and lactation. Technical update: Women and adolescent nutrition. West Africa Nutrition Focal Point Meeting, 2001.

Semba, RD, and G Gary. 2001. Pathogenesis of anemia during human immunodeficiency virus infection. *J Investigative Medicine* 49(3): 225-39.

Semba, RD, et al. 1994. Maternal vitamin A deficiency and mother-to-child transmission of HIV-1. *Lancet* 343: 1593-97.

Singer, P, et al. 1992. Nutritional aspects of the acquired immunodeficiency syndrome. *Am J Gastroenterology* 87(3): 265-73.

WHO. 1985. Energy and protein requirements: Report of a joint FAO/WHO/UNU consultation. Geneva.

WHO/BASICS/UNICEF. 1999. Nutrition essentials. A guide for health managers. Geneva.

# LECTURE NOTES 6: NUTRITIONAL CARE AND SUPPORT OF PREGNANT OR LACTATING WOMEN AND ADOLESCENT GIRLS INFECTED WITH HIV/AIDS

## Introduction

Good maternal nutrition during both pregnancy and lactation is vital for the survival and well-being of the developing infant. Well-nourished mothers have healthier babies and a lower risk of maternal mortality and morbidity. In contrast, malnourished women have higher reproductive risks and subsequently poorer pregnancy outcomes than their well-nourished counterparts. In sub-Saharan Africa, where malnutrition is endemic, many women are malnourished even before pregnancy, and over 50 percent of women are HIV infected. Malnutrition and HIV work in tandem, with malnutrition weakening the immune system and increasing vulnerability to infection and HIV compromising nutritional status and increasing vulnerability to infection. Consequently, the nutritional status of an HIV-infected woman or adolescent girl before, during, and after pregnancy may influence her own health as well as the risk of transmitting HIV to her infant. Improving nutritional status and food security for all, including HIV-infected pregnant and lactating women or adolescent girls, so that they remain productive is a challenge for policymakers.

## Purpose (slides 2, 3)

The purpose of this session is to give students a general understanding of special considerations for nutritional care and support of HIV-infected pregnant or lactating women or adolescent girls. The session:

- Explains how HIV infection increases the risk of malnutrition in pregnant and lactating women living with HIV/AIDS in resource-limited settings
- Describes the essential components for nutrition care of HIV-infected pregnant or lactating women and adolescents
- Describes the general dietary recommendations for HIV-infected pregnant or lactating women and adolescents

- Makes recommendations for nutritional care and support of HIV-infected pregnant or lactating women and adolescents

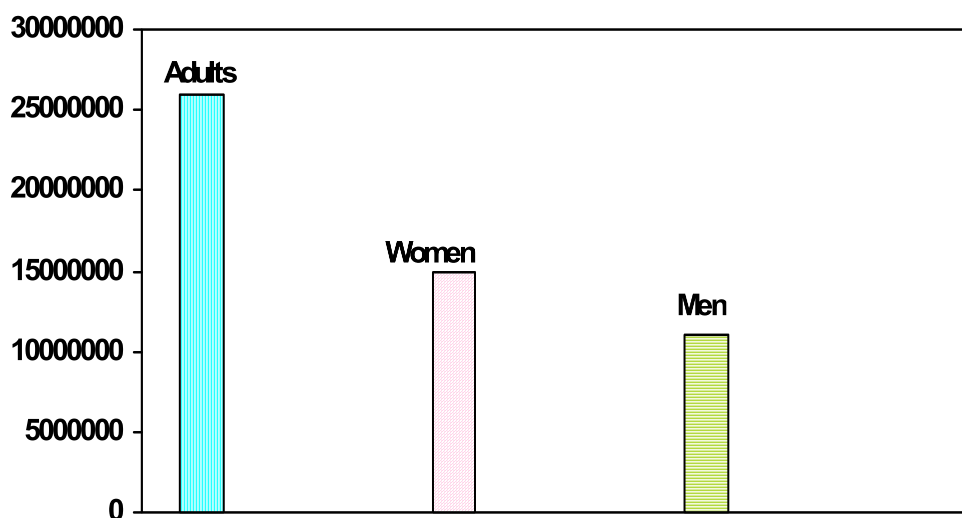
- Lists factors to consider when planning nutritional care and support for HIV-infected pregnant or lactating adolescents

- Explains the challenges HIV-infected pregnant and lactating women face that increase their risk for malnutrition

## Why focus on women, nutrition, and HIV? (slides 4, 5, 6, 7)

HIV is said to have the face of a woman. The vulnerability of women and girls to HIV is increased by biological, economical, social, and cultural factors. In addition, in some countries the legal and political status of women makes them more vulnerable to HIV/AIDS. HIV spreads rapidly, particularly among young women. According to WHO/UNAIDS figures, 12-13 African women are infected for every 10 African men (UNAIDS 2001). Over 50 percent of adults (15-49 years of age) living with HIV/AIDS in sub-Saharan Africa are women (figure 1). These women are in their most productive and reproductive years.

**Figure 1 Estimated number of men and women 15-49 years of age living with HIV/AIDS in sub-Saharan Africa, end of 2001** (slide 8)



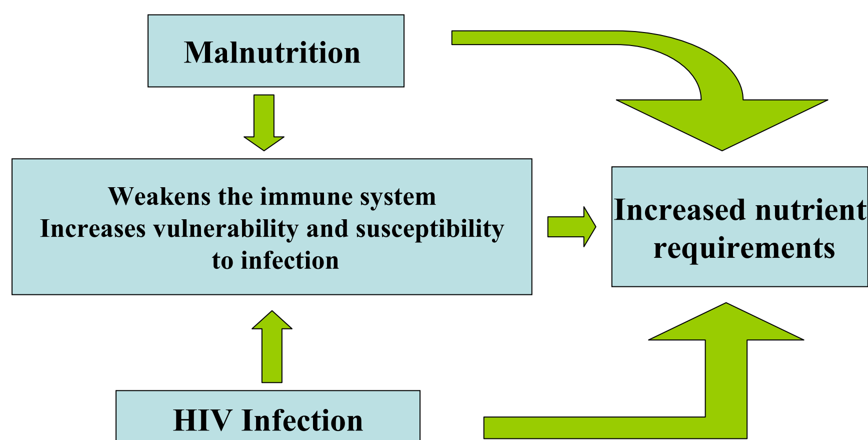

*Source*: UNAIDS 2002

The stigma associated with HIV can cause isolation and depression, particularly if governments, religious leaders, and community leaders do not discuss the disease (UNAIDS 2001). Silence also contributes to the general impact of HIV/AIDS on food security and nutrition, because infected people may be discriminated against in the workplace or be unable to work because of illness, personal isolation, and difficulty coping with their status. In addition, the burden on women who must care for HIV-infected children or other family members is especially great and increases the family's vulnerability to food insecurity and malnutrition.

Good maternal nutrition is important for the health and reproductive performance of women, as well as the survival and development of their children (slide 8). However, these reproductive years are periods of nutritional stress for many African women. Pregnancy-related health and nutrition problems have an effect on the quality of their lives and the lives of their newborn infants well beyond delivery. Malnourished women have high reproductive risks and subsequently poorer pregnancy outcomes than women who are well nourished (Institute of Medicine 1990). Well-nourished women have healthier babies and a lower risk of maternal morbidity and mortality. The physiological changes that occur during pregnancy require extra nutrients and energy to meet the demand of an expanding blood supply, the growth of maternal tissue, the developing fetus, loss of maternal tissue at birth, and preparation for lactation.

In Africa malnutrition is an endemic problem that has been complicated by HIV/AIDS. Furthermore, malnutrition and HIV work in tandem. Malnutrition weakens the immune system and therefore increases vulnerability to infections and may hasten the progression of HIV to AIDS. In the other direction, HIV compromises the nutritional status of infected people and increases their susceptibility to other infections (Piwoz and Preble 2000). Figure 2 shows the relationship between HIV and malnutrition. The endemic problem of malnutrition makes many women enter pregnancy are already malnourished and makes them malnourished prior to infection. For women who are HIV infected, the effects of malnutrition and HIV increase poor clinical outcomes and poor birth outcomes. The nutritional status of an HIV-infected woman or adolescent girl prior to, during, and after pregnancy may influence her own health as well as risk transmitting HIV to her infant.

**Figure 2 Malnutrition and HIV** (slide 9)




*Source*: Adapted from Piwoz and Preble 2000

Improving nutritional status and food security issues for all, including HIV-infected pregnant or lactating women or adolescent girls so mothers can remain productive, is a challenge for policymakers. The following sections look at special considerations for nutritional care and support of HIV-infected pregnant or lactating women or adolescent girls to promote adequate gestational weight gain, improve or maintain good nutritional status, prevent weight loss during lactation, reduce maternal mortality, and delay disease progression.

## Nutritional implications for the HIV-infected pregnant or lactating woman or adolescent girl (slide 10)

The negative relationship between malnutrition and HIV discussed in earlier sessions has particular implications for women of reproductive age.

**The HIV-infected pregnant or lactating woman** (slides 11, 12, 13, 14)

In all women, malnutrition **during pregnancy** increases maternal morbidity and mortality and affects birth outcomes. For the HIV-infected pregnant woman, HIV infection causes nutrient losses that increase nutritional requirements and the risk

of malnutrition, which increases the risk of mother-to-child transmission (MTCT) of HIV.

Semba et al (1994) and Nduati (1995) have shown that vitamin A deficiency, even in mild and moderate forms, is independently associated with HIV viral load in blood, genital secretions, and breastmilk, increasing the risk of MTCT. Vitamin A deficiency is common among African populations, including women.

Randomized placebo-controlled studies have been carried out in Africa by Coutsoudis et al (1999) and Fawzi et al (1998) on the impact of vitamin A supplementation and other vitamin supplements on vertical HIV transmission. None of these studies has shown a benefit of vitamin A supplementation in reducing vertical HIV transmission during pregnancy or the intrapartum period. However, the studies found a marked decrease in prenatal mortality and an increase in birth weight that was associated with vitamin A supplementation in pregnancy.

Caution must be exercised with regard to vitamin A supplementation. A 2002 study in Tanzania by Fawzi et al found that vitamin A supplementation of HIV-infected pregnant women from 20 weeks gestation and throughout lactation actually increased the risk of vertical transmission of HIV through breastfeeding. On the other hand, though the results were not statistically significant, providing HIV-infected, immunologically and nutritionally compromised breastfeeding mothers with a multivitamin that did not contain vitamin A was associated with a decrease in HIV-1 transmission through breastfeeding and in child mortality. Given these research findings, Fawzi suggests that providing multivitamins to HIV-infected lactating women may improve their child’s health. WHO does not recommend daily vitamin A supplementation during breastfeeding, and such supplementation is not advised for HIV-infected women. A multivitamin should contain less than 800 micrograms or 2500 IU of vitamin A per day.

Providing multivitamin supplementation to HIV-infected women during pregnancy has shown decreased adverse pregnancy outcomes and increased T-cell counts (Fawzi et al 1998). In yet another study giving multivitamin supplements daily during pregnancy to HIV-infected women improved weight gain among these women (Villamor et al 2002). These studies suggest that providing a daily multivitamin to HIV-infected women as part of their care is beneficial.

Anemia already affects half of all pregnant women in Africa and is common in HIV-infected women. Anemia is a risk factor for pre-term delivery and low birth weight, and both of these conditions increase the risk of MTCT. However, it is important to recognize that there are many causes of anemia in HIV infection. A study of multivitamins plus iron and folic acid given during pregnancy to HIV-infected mothers (Fawzi et al 2000) resulted in increased weight gain during pregnancy, lower risk of low birth weight, and pre-term delivery, and other positive related outcomes.

Increased energy demands **during lactation** may also increase weight loss, a risk factor for reduced survival in HIV infection. The HIV-infected lactating woman is at an increased risk for malnutrition and may be at an increased risk for mortality, although results are not substantiated.

There has been very little study of the impact of breastfeeding on maternal HIV disease progression. Two published studies that contain such evidence were not originally designed to address this issue. One study, in Kenya (Nduati 2001), found that HIV-infected mothers who breastfed were more likely to die in the 2 years following delivery compared with mothers who did not breastfeed. A study in South Africa (Coutsoudis et al 2001) found no increased morbidity or mortality in women who breastfed. According to WHO, there is no conclusive evidence to suggest that HIV-1-infected women who breastfeed are at an increased risk of mortality. More research is required before changes in policy can be made against breastfeeding by HIV-infected mothers for maternal survival can be made.

It is also not known whether maternal nutritional supplementation can improve the health and prolong the survival of HIV-infected mothers who breastfeed. This issue is currently under study in Zambia and Malawi

**The pregnant or lactating adolescent** (slide 15)

A young maternal age (11-18 years) increases nutrient needs above the ordinary demands of pregnancy. This is a result of the combined needs for adolescent growth and fetal growth and development (American Dietetic Association and Dietitians of Canada 2000). For the HIV-infected pregnant or lactating adolescent, nutrient requirements increase as a result of HIV infection. Thus the requirement for energy, protein, and other nutrients increases overall to ensure continued growth of the

adolescent mother, growth and development of the fetus, and fulfillment of the increased demands on the body by HIV infection.

The HIV-infected pregnant or lactating adolescent is at high risk of malnutrition and should be closely monitored. Improving nutrition prior to pregnancy should be the main goal to minimize the impact of HIV on nutrition. This is a challenge because many women and adolescent girls do not know they are HIV infected until the disease is advanced or until they choose to be tested for HIV at the antenatal clinic. Early nutrition interventions can minimize the impact of HIV on the mothers' nutritional status and health.

## Nutritional requirements of HIV-infected pregnant or lactating woman

(slide 16)

Much is known about the increased nutritional requirements of HIV-positive women who are pregnant or lactating, but the exact amounts of nutrients needed in case of secondary infections is still to be determined.

**What is known** (slide 17)

During pregnancy and lactation the requirements for energy, protein, and various micronutrients increase to meet the demands for adequate gestational weight gain, growth and development of the fetus, and milk production. HIV infection causes excess nutrient loss and malabsorption, further increasing the nutritional requirements of HIV-infected pregnant or lactating women. The requirements may be higher if the HIV-infected pregnant woman is suffering from secondary infections. These requirements are in addition to those needed to support a normal and healthy pregnancy and lactation. As a result, the HIV-infected pregnant or lactating woman is at greater nutritional risk than the non-HIV-infected woman (table 1). The HIV-infected pregnant or lactating woman or adolescent girl requires additional food as a result of the combined needs to meet the extra demands for nutrients during pregnancy and lactation and the demands HIV infection imposes on the body.

**What is not known** (slide 18)

Because studies have not demonstrated that increased protein intake by PLWHA leads to positive clinical outcomes, there is no current recommendation for HIV-

infected pregnant or lactating women to increase protein intake as a result of HIV infection. However, further research is needed on this subject. Tables 2 and 3 list the energy and protein requirements for a healthy, non-HIV-infected woman during pregnancy and lactation.

**Table 1 Comparison of nutritional risks of HIV-infected and non-HIV-infected pregnant and lactating women** (slide 19)

| HIV-infected | Non-HIV-infected |
|---|---|
| • Increased need for energy, protein, and other nutrients secondary to the demands of pregnancy or lactation<br>• Increased need for energy, protein, and other nutrients secondary to HIV infection<br>• Increased risk of opportunistic infections and malnutrition<br>• Increased risk of weight loss and delivery of a low-birth weight baby as a result of HIV infection<br>• Increased risk of inadequate dietary intake and hence malnutrition as a result of depression, isolation, or stigmatization<br>• Increased risk of MTCT with poor nutritional status<br>• Increased risk of transmitting the virus to the baby through breastfeeding | • Increased need for energy, protein, and other nutrients secondary to the demands of pregnancy or lactation |

**Recommended nutritional requirements for the HIV infected pregnant or lactating woman** (slide 20)

Similar to HIV, common secondary infections such as fever and diarrhea increase energy and nutrient requirements. Fever, a common symptom in HIV-infected people, increases energy requirements by about 10 percent for every degree rise above normal body temperature. The energy and nutrient requirements imposed by a co-infection such as fever may need to be taken into account when assessing the nutritional requirements of someone infected with HIV, just as they would be for someone who is not HIV infected.

HIV infection increases the energy requirements of a pregnant or lactating HIV-infected woman, and fever increases them further. The current recommended increase in energy intake for HIV-infected pregnant and lactating women is the same as for non-pregnant, non-lactating HIV-infected women (10 percent during the asymptomatic phase and 20 percent-30 percent during the symptomatic phase). The additional energy (10 percent) is added to the basic energy requirements for a non-pregnant, non-lactating woman of the same age and physical activity level (Seumo-Fosso and Cogill 2003).

For example, if a 25-year-old moderately active 55 kg woman requires 2,140 kcal daily, an asymptomatic HIV-infected moderately active pregnant woman of the same age and weight will require approximately 2,140 kcal + 214 kcal (10 percent increase due to HIV) + 285 kcal (due to pregnancy) = 2,639 kcal daily. If she is symptomatic (e.g., has fever), then she will require 20 percent-30 percent additional energy (428 kcal-642 kcal).

**Table 2 Recommended energy and protein requirements for healthy women during pregnancy** (slide 21)

| Source | Energy requirements | Protein requirements |
| --- | --- | --- |
| **FAO/ WHO 1985** | 285 kcal/day above non-pregnant level if physical activity is maintained<br><br>200 kcal/day above non-pregnant level if physical activity is reduced | Average 6 g/day of protein above non-pregnant levels throughout pregnancy |
| **Institute of Medicine, U.S. National Academy of Sciences 1990** | 300 kcal/day above non-pregnant levels<br>(Based on theoretical calculations that assume a maternal weight gain of 12.5 kg and median infant birth weight of 3.3 kg). | **60 g/day of protein**<br><br>(10 g/day above the recommended dietary allowance for protein) throughout pregnancy |

The Institute of Medicine of the National Academy of Sciences in the United States gives the most recent (1990) recommendations for energy intake during pregnancy.

These recommendations are universally accepted. The FAO/WHO recommendations published in 1985 are the most commonly used in developing countries.

The healthy non-HIV-infected woman needs about an additional 200 kcal per day and more if her pre-pregnancy weight is low. For the healthy lactating woman, separate allowances have been set for the first and second 6 months of lactation, reflecting the differences in the amount of milk produced. Table 3 shows FAO/WHO-recommended energy and protein requirements. Most breastfeeding women in developing countries need an extra 500 kcal per day to meet the energy demands of lactation.

**Table 3 Recommended energy and protein requirements for healthy women during lactation** (slide 22)

| | |
|---|---|
| Energy **(FAO/WHO, 1985)** | Extra **500 kcal/day** above non-lactating levels (increase if the mother is breastfeeding more than one child) |
| Protein **(FAO/WHO, 1985)** | Extra **16g/day** for the first 6 months of lactation, **12g/day** for the second 6 months, and 11g/day thereafter |

**Micronutrient supplementation for pregnant and lactating women and adolescent girls**

Pregnant women and infants are the most vulnerable to iron deficiency. Anemia during pregnancy is a risk factor for infant and probably maternal morbidity and mortality. Iron deficiency anemia of up to 80 percent is found in some countries of sub-Saharan Africa. Because anemia is so prevalent, iron and folic acid supplementation is recommended during pregnancy and lactation for 6 months in pregnancy. If started late, this supplementation should extend into the post-natal period for 6 months where the prevalence of anemia is < 40 percent. Where the prevalence is > 40 percent, supplementation is recommended for 6 months in pregnancy and 3 months post-partum for a total of 9 months (WHO/BASICS/UNICEF 1999). Iron and folic acid supplements should be provided to HIV-infected pregnant women as per existing national standards for antenatal care for all pregnant women.

Anemia is common during HIV infection (Levine et al 2001), and in the HIV-infected mother anemia increases the risk of mortality. The causes of anemia in HIV infection are complex. In developing countries anemia in pregnant or lactating women may be a result of poor dietary intake, poor absorption of iron or other vitamins such as folate and vitamin $B_{12}$, and co-infections such as malaria and hookworm. For the HIV-infected pregnant woman, prolonged use of some antiretroviral drugs (ARVs), such as AZT (Zidovudine), can cause anemia that presents as megaloblastic anemia like that seen with folate or vitamin $B_{12}$ deficiency.

In many developing countries iron supplementation during pregnancy and lactation is recommended. Excessive amounts of iron may contribute to HIV disease progression (Clark and Semba 2001; Gorduek et al 2001; Semba et al 2001). However, Clark and Semba (2001) concluded that the available data did not contraindicate the current practice of iron supplementation in developing countries with a high prevalence of both iron deficiency anemia and HIV. Therefore, pregnant women should receive iron supplementation to prevent anemia as per the standard of care for pregnant women in the country, pending further review of the issue. Table 4 gives WHO/UNICEF guidelines for iron and folic acid supplementation for all pregnant women.

**Table 4 Recommended iron and folic acid supplements for pregnant women to prevent anemia** (slide 23)

| Prevalence of anemia in pregnant women in the area | Dose | Duration |
|---|---|---|
| < 40% | 60 mg iron + 400 mcg folic acid daily *(where iron supplements containing 400mcg folic acid are not available, an iron supplement with a lower level of folic acid may be used)* | 6 months in pregnancy *(or if started late, extend to post-natal period for a total of 6 months. If this is not possible, increase the dose to 120 mg iron in pregnancy)* |
| >40 % | 60 mg iron + 400 mcg folic acid daily *(where iron supplements containing 400 mcg folic acid are not available, an iron supplement with a lower level of folic acid may be used)* | 6 months in pregnancy plus 3 months post-partum (for a total of 9 months) |

*Source*: WHO/BASICS/UNICEF 1999

Data on other micronutrient intake for HIV-infected pregnant and lactating women are limited. Only Fawzi et al (1998) have studied this issue, among pregnant and lactating HIV-infected women in Tanzania. In this randomly assigned placebo-controlled trial, HIV-infected pregnant women at 12-27 weeks gestation received either a daily prenatal supplement of vitamin A (1,667 mcg RE, or 5,000 IU, preformed vitamin A plus 30 mg or 5,000 mcg RE of beta-carotene], a multivitamin containing folic acid, thiamin, riboflavin, niacin, and vitamins C, $B_6$, $B_{12}$ and E, both the vitamin A and multivitamin, or neither (placebo group). The study showed no significant effect on the risk of HIV transmission from either vitamin A or multivitamin supplementation. However, the multivitamin supplements, not the vitamin A, decreased the risk of fetal mortality. The researchers concluded that multivitamin supplementation is a low–cost way to reduce adverse pregnancy outcomes in HIV-1-infected women.

The pregnant adolescent girl has an increased need for iron, folic acid, and zinc. A multivitamin supplement, where available, can help meet these increased needs.

The use of high levels of supplements (usually **greater than 10 times** the recommended daily allowance) is not recommended because it can lead to nutrient toxicity that can be harmful to the body. Nutrients that may become toxic if taken in large amounts include iron, zinc, selenium, and vitamins A, B, C and D. For the HIV-infected pregnant or lactating woman, a high intake of these nutrients could do more harm. For example, studies have shown that high intakes of iron may contribute to HIV-disease progression (Semba and Gary 2001), and that for the lactating HIV-infected mother, vitamin A supplementation may increase the risk of HIV-1 transmission (Fawzi et al 2002).

**Note:** Almost all the studies mentioned have shown that multivitamin supplementation is associated with health benefits for both HIV-infected mothers and their infants and should therefore be provided where available.

## Nutritional recommendations for healthy adolescents during pregnancy and lactation

The nutritional requirements of healthy pregnant and lactating adolescents are known, but energy, protein, and other nutrient requirements to compensate for HIV infection in pregnant and lactating adolescents have not been determined.

**What is known** (slides 24, 25)

The risk of malnutrition increases in teenage pregnancies because of the combined needs of the growing adolescent and the growing fetus, especially if the pregnancy occurs less than 2 years after the start of menses. Nutrition requirements should consider energy needs for normal growth of the adolescent and weight gain needed for the pregnancy. Pregnant adolescents need an **extra 300 kcal/day** in the second and third trimesters.

The American Dietetic Association and Dietitians of Canada (2000) recommend that pregnant adolescents eat at least 2,000 kcal/day. In many developing countries adolescent girls who are not pregnant or HIV infected may not get adequate energy for growth and development. Therefore, chances are that many pregnant adolescent girls are already undernourished. Getting more than the recommended 2,000 kcal/day to meet the demands of adolescent pregnancy may be difficult, especially where food security is a significant concern. See Session 4 for what can be done to

help young adolescent pregnant girls who may be HIV infected, at high nutritional risk, and at high risk for morbidity and mortality.

**What is not known** (slide 26)

As noted above, the increased energy needed during pregnancy and lactation for HIV-infected women is the same as for other infected adults (i.e. 10 percent during asymptomatic infection and 20 percent-30 percent during symptomatic HIV infection). It is still unclear whether the same applies to an HIV-infected pregnant or lactating adolescent girl. There are no current recommendations to increase protein requirements for the HIV-infected pregnant or lactating adolescent girl.

**Practical considerations**

Pregnancy and HIV have a negative synergetic effect on the immune function.

- Both impose physiological stress on the body.
- Both affect immune response in women, which increases their vulnerability to viral, bacterial, and fungal infections.
- Both increase metabolism, which increases the requirements for energy, protein, and micronutrients.

These demands superimposed on the HIV-infected pregnant or lactating woman or adolescent girl require regular nutritional assessments (described later) and early nutrition interventions to individualize nutritional care and support.

Research is needed to assess which nutrients are needed and in what amounts for the HIV-positive pregnant or lactating woman or adolescent. Until there is clear guidance, the established nutrition requirements for a normal pregnancy and lactation and the recommended increases in energy intake as a result of HIV infection should be followed. Additional individualized requirements could be recommended based on the nutritional assessment. Country guidelines for vitamin and mineral supplementation for pregnant and lactating women and recommendations for the HIV-positive pregnant or lactating woman should be consulted.

## Nutritional care and support for the HIV-infected pregnant or lactating woman or adolescent girl (slides 27, 28, 29)

It is well established that the nutritional well-being of a healthy mother is critical for an uncomplicated pregnancy and positive outcome. Nutritional status has even greater implications for the HIV-infected woman or adolescent, who is at higher risk of delivering premature or low-birth weight infants and being malnourished than the uninfected woman. Poor nutritional status of the HIV-infected mother during pregnancy may also increase the risk of vertical transmission during pregnancy.

For all women, improving nutritional status before and during pregnancy and during lactation can help ensure adequate gestational weight gain and decrease the risk of premature delivery and low birth weight. For the HIV-infected woman in particular, improving nutrition can help strengthen the immune system, prevent weight loss during lactation, prevent maternal malnutrition, and delay disease progression, allowing the woman to remain productive and prolong her quality of life. Nutritional care and support plays an important role in the overall care of the pregnant or lactating woman or adolescent girl living with HIV/AIDS.

**Purpose of nutritional care** (slide 30)

During **pregnancy** nutritional care is needed to meet the demands of expanded blood volume, growth of maternal tissues, a developing fetus, and loss of maternal tissues at birth, as well as to prepare for lactation.

During **lactation** nutritional care is needed to meet specific nutrient needs to optimize maternal post-natal nutritional status, the quality and quantity of breastmilk production, and infant growth and development.

Nutritional care during pregnancy and lactation is needed for all pregnant and lactating women or adolescents, regardless of their HIV status. However, the challenge is to ensure that HIV-infected pregnant or lactating women or adolescents are able to maintain good nutritional status throughout pregnancy to carry their pregnancies to term. HIV infection increases not only the pregnant woman's nutrition requirements but also her susceptibility to infection, which in turn puts her at high risk for malnutrition and pre-term delivery. This vicious cycle can be controlled to some extent through good nutritional care and support. This should be

done as early in the pregnancy as possible to minimize the impact of HIV on the woman's nutritional status and delay disease progression. The woman can then remain productive and able to take care of her infant, herself, and her family. Psychological support for the HIV-infected pregnant or lactating woman or adolescent girl is integral to this care.

**Practical considerations**

1. Antenatal contacts with mothers can be used for voluntary counseling and testing (VCT) to determine as early in the pregnancy as possible whether the mother is HIV infected. Antenatal contacts can also be used for nutritional assessments to determine whether eating patterns provide adequate nutrient intake and to allow for early nutrition interventions, monitor weight gain during pregnancy, and support successful infant feeding post-partum.

2. Actions have been identified for the health sector can carry out to improve the nutrition of pregnant and lactating women, including those who are HIV infected. These Essential Health Sector Actions aim to ensure the following outcomes (Huffman et al 2001):

    - Adequate food intake during pregnancy and lactation
    - Adequate micronutrient intake during pregnancy and lactation
    - Reduction in malaria infection in pregnant women in endemic areas
    - Reduction of hookworm infection in pregnant women in endemic areas
    - Birth spacing of 3 years or longer

See **Handout 6.1**: Health Sector and Maternal Actions to Improve Maternal Nutrition in Africa.

The Essential Health Sector actions can be achieved through contacts with women during antenatal care, delivery and post-partum care, child health visits, and family planning services. Each contact point can be used to provide nutritional care and support to improve the nutrition of the pregnant and lactating women and adolescent girls.

Management of secondary infections is important to minimize their impact on the mother's nutritional status. This management includes promoting the treatment of opportunistic infections and management of common HIV symptoms that are diet related, such as nausea, vomiting, diarrhea, fever, anorexia (loss of appetite), taste changes, sores in the mouth or throat (thrush), constipation, heartburn, and bloating. Some of these common HIV symptoms (i.e., nausea, vomiting, constipation, heartburn, and bloating) are also common in pregnancy.

Anorexia, nausea, vomiting, oral thrush, constipation, heartburn, and bloating can have a serious impact on the HIV-infected pregnant woman's nutritional status because they reduce food intake. Diarrhea and vomiting increase nutrient losses, and fever increases nutrient requirements. Management of these symptoms should be prompt to minimize their impact on the nutritional status and health of the mother.

Nutritional care should be part of a comprehensive program that provides health care as well as emotional, psychological, and spiritual support for the HIV-infected mother and her family.

## Goals of nutritional care and support for the HIV-infected pregnant or lactating woman or adolescent girl (slide 31)

Lwanga (2001) lists the following goals of nutritional care and support for HIV-infected pregnant women (slide 32):

- Improve nutritional status. Maintain weight, prevent weight loss, and preserve lean body mass.

- Ensure adequate weight gain during pregnancy. A pregnant woman should gain at least 1 kg per month during the second and third trimesters.

- Ensure adequate nutrient intake by improving eating habits and building stores of essential nutrients (both macronutrients and micronutrients). These nutrients include carbohydrates, protein, important antioxidant nutrients, and other vitamins and minerals necessary for the functioning of the immune system.

- Prevent food-borne illnesses by promoting hygiene and food and water safety.
- Enhance the quality of life by promptly treating infections and managing the symptoms that affect food intake to minimize the impact of secondary infections on nutritional status.
- Provide palliative care as necessary during advanced stages of the disease.

## Components of nutritional care and support for the HIV-infected pregnant or lactating woman or adolescent girl (slide 33)

The HIV-infected pregnant or lactating woman or adolescent girl needs regular nutritional assessments and early nutrition interventions. Programs that provide nutritional care and support for HIV-infected pregnant and lactating women should include the following components:

### Nutrition screening and assessment

The nutritional assessment is important to gather information on the nutritional status and adequacy of the diet and to identify risk factors for developing nutritional complications. The earlier in the pregnancy this assessment can be done the better. The information gathered should be interpreted to identify problems that put the woman at high nutrition risk or contribute to the malnutrition. The nutritional assessment should help counsel the mother on her diet to ensure adequate gestational weight gain, improve eating habits, and identify and address food insecurity issues. The goal of the nutritional assessment and interventions are to improve nutritional status, enhance quality of life, and prolong survival of the mother (American Dietetic Association and Dietitians of Canada 2000).

Refer to **Handout 6.2**: Guide to Nutritional Assessment of HIV-Infected Pregnant and Lactating Women

***Components of a nutritional assessment*** (slide 34)

Nutritional assessments include the following:

**A. Nutrition history**

- Dietary intake and adequacy
- Eating habits
- Food intolerance and aversions to related symptoms
- Dietary problems (e.g., poor appetite, difficulty chewing and swallowing, gastrointestinal problems, and pain in the mouth and gums)
- Hygiene and food preparation and handling practices
- Psychosocial factors contributing to inadequacy of intake, such as social isolation, depression, stigma, and inability to prepare food
- Fatigue
- Physical activity
- Knowledge of food and nutrition issues
- Use of vitamin and mineral supplements and alternative practices

**B. Physical assessment**

- Anthropometric measurements
    - **Pregnant woman**: Height, pre-pregnancy weight, weight gain during pregnancy (at least 1 kg per month in the second and third trimesters)
    - **Lactating woman**: height, current weight, pre-pregnancy weight, weight during pregnancy and 6 weeks post-partum; **body mass index (BMI) of less than 18.5 indicates nutrition risk**
- Measurement of mid-upper-arm circumference (MUAC) for evidence of loss of muscle mass; **less than 23 cm indicates nutrition risk**

- Screening for oral or pharyngeal inflammation or pain
- Screening for pallor (inner eyelids and palms)

**C. Medical history**

- Gastrointestinal problems (e.g., diarrhea, abdominal pain, nausea, vomiting)
- Pattern of bowel movements (constipation or diarrhea)
- Presence of opportunistic infection
- Concurrent medical problems (e.g., diabetes, hypertension, malaria)

**D. Medication profile**

- Drug use (ARVs, alternative therapies, and other medications)
- Side effects of medications with nutritional implications
- Nutrition-medication interactions
- Traditional herbs or medicine interactions

**E. Biochemical data** (laboratory data where available and feasible)

- Serum albumin
- CD4 and viral load counts
- Evaluation of anemia: Iron (Hb), vitamin $B_{12}$, and folate status

**F. Psychosocial profile**

- Living environment and functional status

- Income, housing, amenities for cooking, access to food, attitude towards nutrition and food preparation, age, family or support system, and educational level

**G. Profile of lactating woman**

- Family and other support for breastfeeding

- Breastfeeding pattern: Exclusive breastfeeding, mixed feeding (breastmilk and formula), breastfeeding during pregnancy

**Practical considerations for nutrition interventions**

1. Encourage women to eat a varied diet with extra food and get additional rest, particularly in the third trimester of pregnancy. The HIV-infected pregnant or lactating adolescent may require even more food than the HIV-infected pregnant or lactating woman. However, all interventions should be based on the individual nutritional assessment.

2. Conduct nutritional assessments for women with weight gain below the recommended range. This may indicate a possible medical problem (e.g., an opportunistic infection), inappropriate energy intake, or food insecurity. Identify and implement appropriate interventions.

3. Monitor weight gain during pregnancy. Pregnancy weight gain of less than 1.5 kg per month in the second and early third trimesters, or less than 10.5 kg during the entire pregnancy, is of serious concern, and the mother should be referred for further care. **Note:** This applies to <u>all</u> pregnant women. The gestational weight of HIV-infected pregnant women or adolescents should be monitored more regularly because of the impact of the infection on the body. In this way any faltering can be addressed early and good nutritional status maintained.

4. Be aware of community services and programs (e.g., food distribution programs, women's groups for psychosocial support) that may benefit nutritionally vulnerable women. Establish links and refer women who need these services.

5. Assess the HIV-infected pregnant woman for other risk factors that can affect nutritional status and pregnancy outcome. These factors include adolescence,

previously existing malnutrition, underweight status at the start of pregnancy, anemia, gestational diabetes, and opportunistic infection.

6. Discuss with the mother dietary management and appropriate interventions of diarrhea, nausea, vomiting, malabsorption, loss of appetite, oral thrush, and opportunistic infections. These conditions may prevent weight gain in the HIV-infected pregnant woman or adolescent and have a profound impact on nutritional status and disease progression in an HIV-infected pregnant woman.

7. Be aware of cultural foods, traditional therapies, and practices that are harmful during pregnancy and lactation and counsel the mother about them.

8. Counsel the mother on foods to avoid, especially foods that expose her to bacterial or enteric infection, which can hasten disease progression. These foods include raw eggs or foods with little nutritional value or that do not improve nutritional status. For example, coffee and alcohol decrease appetite, interfere with metabolism, and in the case of alcohol, may interact with some medications to decrease their efficacy.

9. Note the medications, including ARVs, that the HIV-infected pregnant or lactating woman is taking and be aware of the food and drug interactions that can have a negative impact on the woman's nutritional status by reducing food intake. Provide appropriate interventions as required.

10. Improving micronutrient status is an important step to decrease maternal malnutrition, although the additional amounts required by the HIV-infected pregnant or lactating woman have not been determined. Provide multivitamins and other vitamin or mineral supplements as per the country guidelines or WHO/UNICEF guidelines for all pregnant women. Stress the use of iodized salt to prevent iodine deficiency.

11. If multivitamins are recommended to improve the adequacy of the diet or the mothers' nutritional status, carefully analyze their composition. High doses of many nutrients (more than **10 times** the usual recommended dietary allowance) may harm the immune system rather than benefit the mother. For example, vitamin C in excess of 1,000 mg may cause or exacerbate diarrhea.

In summary, it is important to improve the diet and eating habits of HIV-infected pregnant or lactating women and adolescent girls. If the diet is not varied, a

multiple nutrient supplement, where available, may be needed. Managing barriers to weight gain is important. Ensure that the woman eats sufficient food daily and that the types of food used to prepare meals and snacks provide her with enough critical nutrients to meet her daily needs for pregnancy and lactation. Provide information and counseling on managing feeding and appetite problems during pregnancy and, if necessary, during lactation.

Refer to **Handout 6.3**: Checklist for the Nutritional Assessment of the Pregnant or Lactating HIV-infected Pregnant Woman or Adolescent Girl.

**Nutrition education and counseling** (slide 34)

Nutrition education and counseling should be an integral part of nutritional care and support of the HIV-infected pregnant or lactating woman or adolescent. Nutrition education and counseling are important to help the mother understand the need to maintain an adequate diet and how to manage common gastrointestinal problems related to HIV and pregnancy that may have a negative impact on nutritional intake.

Counseling on the dietary management of common symptoms that affect intake is essential to ensure continued adequate energy and nutrients to maintain lean body mass, ensure optimal gestational weight gain during pregnancy, and delay disease progression. In addition, counseling and education should address vitamin and mineral supplementation (particularly iron and folate supplementation) during pregnancy, malaria and hookworm treatment as required, and adequate diet to support lactation and prevent weight loss.

Group educational talks can address topics of concern to most women, leaving time in individual sessions for evaluation and counseling. Topics for group talks may include food safety, importance of fluids and hydration during lactation, and locally available nutrient-dense food choices. Antenatal clinics and women's support groups are settings where group educational talks could be beneficial.

**Nutrition counseling in the context of HIV/AIDS**

Many people think counseling is giving information and advice. But counseling an HIV-infected pregnant woman or adolescent girl may involve more than imparting information and advice on diet, nutrition, and healthy eating. The counselor may

also help the mother address her feelings about and reactions to being HIV infected. A counselor who understands how clients react to HIV infection can provide nutrition counseling to help them examine their options and make the best choices. In this way the clients are more likely to comply with the nutrition information and advice (ADA and DOC 2000; Field-Gardner et al 1997). An effective counselor must:

- Build a trusting relationship with the client
- Maintain professionalism and confidentiality at all times
- Treat the client with respect and acceptance (avoid being judgmental)
- Respect the client even if the counselor does not agree with the client's attitudes, beliefs, and life choices

Nutrition counseling and education to prevent malnutrition during pregnancy and lactation and improve reproductive health and birth outcomes can benefit all pregnant and lactating women, regardless of their HIV status. A list of practical considerations for nutrition counseling is provided in **Handout 6.4** and a checklist for nutrition counseling in **Handout 6.5**. This checklist can be used during field visits and classroom role-plays.

**Food safety and hygiene** (slide 35)

Improper food handling can cause infection in anyone, but for people infected with HIV, food-borne illnesses can cause even more damage because their weakened immune systems increase their susceptibility to other infections (Lwanga 2001). Therefore, a main goal of nutritional care and support for HIV-infected pregnant or lactating women or adolescents is to avoid food-borne illnesses by educating and counseling on hygiene. This can help prevent infections that cause diarrhea, a common cause of HIV disease progression. Hygiene includes water and sanitation and proper food handling and safety.

During the counseling and education session, based on the analysis of the nutritional assessment, the counselor should stress safe food handling practices (see **Handout 6.6**) to avoid food-borne illnesses.

**Management of diet-related HIV problems** (slide 36)

Common diet-related HIV problems include anorexia, nausea, vomiting, diarrhea, constipation, bloating, mouth or throat sores, fever, malabsorption, fatigue, and taste alterations. These can all be barriers to gaining weight during an HIV-complicated pregnancy. Dietary modifications to manage the conditions that affect food intake can minimize the impact on the woman's nutritional status, maximize nutritional intake, ensure adequate gestational weight gain, maintain weight and muscle mass during lactation, and improve quality of life for the infected woman.

Appropriate locally available and affordable dietary interventions should be explored and used as much as possible. Use of medications together with dietary interventions to manage common dietary problems should be an integral part of nutritional care and support for HIV-infected pregnant or lactating women or adolescent girls. Safe traditional therapies that help relieve symptoms should also be considered and encouraged. **Handout 6.7** provides a guide on the dietary management of some common HIV symptoms.

**Physical activity** (slide 37)

Maintaining physical activity has been shown to improve body composition and quality of life in people living with HIV/AIDS. Exercise can also help stimulate the appetite and increase energy. The pregnant or lactating woman should be encouraged to maintain physical activity as much as possible. Exercise as simple as a daily walk should be encouraged. However, as pregnancy advances the pregnant woman or adolescent girl should be encouraged to get more rest and, if possible, avoid strenuous physical activity or work.

**Safer sex and reproductive health practices** (slide 37)

Education and counseling on HIV prevention is important. Safer sex practices such as condom use should be promoted and VCT services provided. These are especially important for the HIV-infected pregnant or lactating woman or adolescent girl because acute infections, including sexually transmitted infections (STIs), may increase maternal viral replication, causing a higher maternal viral load. There is strong evidence that a high viral load increases the risk of vertical transmission of HIV during pregnancy and lactation and further weakens the immune system, making

women even more susceptible to opportunistic infections. Condom use may help HIV-positive women avoid infecting their uninfected partners or prevent repeated exposure to infection from HIV-infected partners. Repeated exposure to HIV can increase maternal viral load and increase the risk of MTCT.

**Psychosocial support** (slide 37)

Psychosocial support is an important part of nutritional care and support for the HIV-infected pregnant or lactating woman or adolescent. Malnutrition with wasting has an impact on self-esteem, which can lead to depression, isolation, lack of appetite, and an aversion to food. For the HIV-infected pregnant or lactating woman or adolescent, this can increase the risk of malnutrition.

It is important to explore feelings such as guilt, fear, and denial when providing psychosocial support. The woman should receive emotional, spiritual, and social support in a supportive environment. Encourage access to peer support where available. Counsel and support the woman on coping with possible stigmatization and discrimination, especially if she has not disclosed her HIV status to her partner, family, and friends.

**Antenatal and post-natal care** (slide 38)

Good antenatal and post-natal care are integral components of nutritional care and support for women infected with HIV. The antenatal clinic is a good place to start early nutrition interventions to minimize the impact of HIV on a woman's nutritional status. Monitoring weight and diet at all antenatal contacts can help ensure adequate weight gain and food intake during pregnancy (see **Handout 6.1**: Health Sector and Maternal Actions to Improve Maternal Nutrition in Africa). Early nutrition interventions for HIV-infected pregnant women may help improve their overall pregnancy outcomes.

Where available, ARVs should be provided to reduce mother-to-child transmission of HIV. Antimalarial prophylaxis and deworming medications should be provided as per national protocols to reduce the risk of anemia and low birth weight. Where possible forge links with traditional birth attendants and include them in discussions on reproductive health practices. Inclusion of the traditional birth attendants can help reduce the risk of MTCT.

**Infant feeding options and risks** (slide 39)

All pregnant women and adolescents should be counseled on infant feeding options and risks. HIV-infected women and adolescents should be informed about ways to reduce risk of HIV transmission to the infant and counseled on related infant feeding options and risks. HIV-infected mothers who choose to breastfeed should be counseled on how to make breastfeeding safer, and mothers who decide not to breastfeed should know the options and risks of replacement feeding.

For breastfeeding women who are at risk of malnutrition, programs should consider providing nutritional support to prevent nutritional depletion, weight loss, and disease progression, as well as to enhance the success of exclusive breastfeeding (the efficacy of this is now being studied). Refer to Session 7 for further information on infant feeding and prevention of mother-to-child transmission of HIV.

**Medications and ARV therapy** (slide 40)

Medications used to treat HIV-opportunistic infections may result in negative drug-nutrient interactions or cause side effects. As access to ARVs increases, more women will be treated with ARVs to delay disease progression and reduce the risk of transmission of the virus to their infants. Many ARVs and medications prescribed to treat opportunistic infections have side effects that may affect dietary intake. These side effects include nausea, vomiting, diarrhea, constipation, anorexia, and changes in taste.

The side effects of medications should be managed to ensure continued food intake and adherence to the medications (see **Handout 5.1**: Caring for Symptoms Associated with HIV in Adults for details on managing common problems in HIV infection). In addition, some food and drug-nutrient interactions have to be taken into consideration, and proper counseling should be provided on the use of these medications by the pregnant or lactating HIV-infected woman or adolescent. For example, supplements containing iron and zinc should not be taken with the antibiotic Ciprofloxacin. Refer to Session 9 on the dietary management of food and drug interactions for further details.

## Issues and challenges for nutritional care and support of HIV-infected pregnant or lactating women or adolescent girls (slide 41)

Lwanga and Piwoz (2001) have identified a number of issues and challenges involved in nutritional care and support of pregnant or lactation women and adolescents that policymakers and health workers should address. First, although nutrition improvement is likely to have its greatest impact early in HIV disease, most people, including women, do not know they are HIV-infected until they have advanced disease (slide 42). This means a need for more accessible counseling and testing services so that women can know their HIV status and deal with it earlier. Improving access to treatment for HIV or opportunistic infections may increase willingness to be tested for HIV.

Stigma and discrimination continue to be problematic, especially for women, who for social and cultural reasons may have less access to care and support services than men (slide 43). Families are more likely to buy medication and care for ill males than females. Stigma, gender issues, and cultural constraints must be addressed to improve care for women and their children.

Access to food is one of the main challenges facing people living with HIV/AIDS in Africa (slide 44). Food insecurity increases the vulnerability of women and young girls to HIV infection as social status is diminished, thus compromising their ability to choose safer and healthier life strategies. Lack of adequate food and nutrition significantly complicate the management of HIV/AIDS.

The gender challenges of HIV, including women's vulnerable social status and legal rights, must be faced (slide 45). In several countries studies have shown that rural women whose husbands died of AIDS were forced into commercial sex to survive because they had no legal rights to their husbands' property. This increases food insecurity and risk of malnutrition. Reversing the spread of HIV will require changes in women's rights and empowerment.

In most cases planting food crops is the responsibility of women (slide 46). AIDS-affected households may plant less food or replace labor-intensive but nutritious crops with root crops that mature quickly but are less nutritious and profitable. The move away from profitable or nutritious crops contributes to household food

insecurity and may increase malnutrition, particularly in nutritionally vulnerable pregnant and lactating women and children.

HIV/AIDS adds to the already heavy burden women face as workers, caregivers, educators, and mothers (slide 47). Women are responsible for caring for the sick when they themselves may be infected. At the same time, in many countries their legal, social, and political status makes them more vulnerable to HIV/AIDS.

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## DISCUSSION POINTS 6

1. What are the most important considerations for nutritional care and support for HIV-infected women pre-pregnancy, in the antenatal period, and during the post-partum period?
2. What are the important nutrition considerations and interventions for the HIV-infected pregnant or lactating adolescent girl?
3. What are the most important practices for a health worker to consider when providing nutritional care and support to an HIV-infected pregnant or lactating woman?
4. Discuss how the issues and challenges mentioned affect the nutritional care and support of HIV-infected pregnant and lactating women in your country.
5. What steps, if any, have been taken in your country to address these challenges?
6. What components of nutritional care and support mentioned are provided in any of the programs you have visited in your field trips? What recommendations would you make to help the programs include missing components?
7. What is being done locally and nationally to address gender issues that exacerbate the impact of HIV/AIDS on women?
8. What ideas do you have to address these issues?

## HANDOUT 6.1 Health Sector and Maternal Actions to Improve Maternal Nutrition in Africa

This handout can supplement the Nutrition Job Aid for antenatal care in regions with high HIV prevalence to improve nutrition for the HIV-infected mother.

| Outcomes | Essential Health Sector Actions | Maternal actions |
|---|---|---|
| **1. Adequate food intake during pregnancy and lactation** | ▪ Encourage increased food intake during pregnancy and lactation<br>▪ Monitor weight gain in pregnancy<br>▪ Counsel on reduced energy expenditure | ▪ Eat at least one extra serving of staple food per day during pregnancy and the equivalent of an extra meal per day during lactation<br>▪ Gain at least 1kg per month in the second and third trimesters of pregnancy<br>▪ Rest more during pregnancy and lactation |
| **2. Adequate micronutrient intake during pregnancy and lactation** | ▪ Counsel on diet diversification<br>▪ Prescribe and make accessible iron and folic acid supplements<br>▪ Assess and treat severe anemia in women<br>▪ Distribute vitamin A to post-partum women | ▪ Increase daily consumption of fruits and vegetables, animal products, and fortified foods, especially during pregnancy and lactation<br>▪ Consume daily supplements (iron/folic acid – 60 mg iron + 400 mg folic acid- or multiple vitamin/mineral supplements) during pregnancy and the first 3 months post-partum<br>▪ **IF** anemic, consume a daily dose of 120 mg iron + at least 400 mg folic acid for 3 months<br>▪ Consume a high dose (200,000 IU) of vitamin A immediately after delivery or within the first 8 weeks after delivery if breastfeeding and within 6 weeks after delivery if not breastfeeding |

| | | |
|---|---|---|
| **3. Reduction of malaria infection in pregnant women in endemic areas** | ▪ Prescribe and make accessible antimalaria curative or prophylactic drugs to pregnant women according to local recommendations<br>▪ Treat clinical infections<br>▪ Promote use of insecticide-treated materials | ▪ In the second and third trimesters, take antimalarial drugs as a curative treatment regardless of symptoms OR take weekly antimalarial prophylaxis starting at the first antenatal visit<br>▪ Seek treatment for fever during pregnancy; take drugs to treat malaria and reduce fever; take iron/folic acid supplements to treat anemia<br>▪ Use insecticide-treated materials |
| **4. Reduction of hookworm infection in pregnant women in endemic areas** | ▪ Counsel on preventative measures (sanitation and footwear)<br>▪ Prescribe and make accessible antihelminthics after first trimester of pregnancy | ▪ Wear shoes and dispose of feces carefully to prevent infection<br>▪ Take a single dose of Albendazole (400 mg) or a single dose of Mebendazole (500 mg) in the second trimester of pregnancy to treat hookworm if endemic (> 50% prevalence) |
| **5. Birth spacing of three years or longer** | ▪ Promote optimal breastfeeding practices<br>▪ Promote family planning as a health and nutrition intervention; counsel on the need for a recuperative period to build energy and micronutrient stores<br>▪ Consider breastfeeding status when prescribing contraception<br>▪ Promote safer sex. | ▪ Initiate breastfeeding in the first hour after birth, breastfeed exclusively for 6 months, and continue breastfeeding for 2 years or more<br>▪ Practice family planning to space births for at least 3 years; delay pregnancy so that there are at least 6 months between the period of breastfeeding and the subsequent pregnancy<br>▪ Use contraceptives that protect breastfeeding<br>▪ Use condoms before deciding to become pregnant and during pregnancy and lactation |

*Source*: Adapted from Essential Health Sector Actions to Improve Maternal Nutrition in Africa, May 2001

## HANDOUT 6.2 A Guide to Nutritional Assessment for Pregnant and Lactating Women with HIV Infection

This handout can be used to supplement the Nutrition Job Aid for antenatal care in regions with high HIV prevalence for a more detailed nutritional assessment of the HIV-infected mother.

| | |
|---|---|
| **Nutrition history** | • Dietary intake and adequacy, eating habits<br>• Food intolerance and aversions to related symptoms<br>• Dietary problems (e.g., poor appetite, difficulty chewing and swallowing, gastrointestinal problems, pain in mouth and gums)<br>• Sanitation and hygiene practices in food preparation and handling<br>• Psychosocial factors contributing to inadequacy of intake (e.g., social isolation, depression, stigma, inability to prepare food)<br>• Fatigue and physical activity<br>• Use of vitamin and mineral supplements and alternative practices<br>• Knowledge about food and nutrition issues |
| **Physical assessment** | • Anthropometric measurements<br>**For pregnant woman**: Height, pre-pregnancy weight, weight gain during pregnancy (mother's weight gain should be at least 1kg per month in the second and third trimesters of pregnancy)<br>**For lactating woman:** Height, current weight, pre-pregnancy weight, weight during pregnancy and 6 weeks post-partum weight, BMI |

| | |
|---|---|
| | • Evidence of loss of muscle mass (wasting)<br>• Oral or pharyngeal inflammation or pain<br>• Pallor (inner eyelids and palms) |
| **Medical history** | • GI problems (e.g., diarrhea, abdominal pain, nausea, vomiting)<br>• Pattern of bowel movements (constipation, diarrhea)<br>• Presence of opportunistic infections<br>• Concurrent medical problems (e.g., diabetes, hypertension, malaria) |
| **Medication profile** | • Drug use (ARVs, alternative therapies and other medications)<br>• Medication side effects with nutrition implications<br>• Nutrition-medication interactions and traditional herbs or medicine interactions |
| **Biochemical data (where available)** | • Serum albumin<br>• CD4 and viral load counts<br>• Evaluation of anemia (iron, $B_{12}$ and folate status) |
| **Psychosocial profile** | • Living environment and functional status (income, housing, amenities to cook, access to food, attitude regarding nutrition and food preparation)<br>• Age<br>• Family or support system |

| | |
|---|---|
| | • Educational level<br>**Lactating mother:**<br>• Family or other supports for breastfeeding<br>• Breastfeeding pattern: Exclusive breastfeeding, mixed feeding (breastmilk and formula), breastfeeding during pregnancy |

*Source*: Adapted from the American Dietetic Association and Dietitians of Canada 2000

## HANDOUT 6.3 Checklist for the Nutritional Assessment of the Pregnant or Lactating HIV-Infected Woman or Adolescent Girl

This checklist offers suggestions for conducting an effective assessment to provide appropriate interventions for the client. Students can use this checklist during the antenatal clinic field visit while observing a nutritional assessment and when role-playing any of the case studies at the end of this topic. Students should be able to carry out a thorough nutritional assessment and analysis and make appropriate recommendations at the end of the field visit or role-play.

| **Did the counselor ask about:** | **YES** | **NO** |
|---|---|---|
| <u>**Nutrition history**</u><br>• Dietary intake and adequacy, eating habits?<br>• Food intolerance and aversions to related symptoms?<br>• Dietary problems (e.g., poor appetite, difficulty chewing and swallowing, gastrointestinal problems, pain in mouth and gums)?<br>• Sanitation and hygiene practices in food preparation and handling?<br>• Psychosocial factors contributing to inadequacy of intake, such as social isolation, depression, stigma, inability to prepare food?<br>• Fatigue and physical activity?<br>• Use of vitamin and mineral supplements and alternative practices?<br>• Knowledge about food and nutrition issues? | | |
| <u>**Physical assessment**</u><br>• Anthropometric measurements<br>***For pregnant woman:*** Height, pre-pregnancy weight, weight gain during pregnancy (mother's weight gain should be at least 1kg per | | |

| Did the counselor ask about: | YES | NO |
|---|---|---|
| month in the second and third trimesters of pregnancy)<br><br>***For lactating woman:*** Height, current weight, pre-pregnancy weight, weight during pregnancy and 6 weeks post-partum weight, BMI<br>• Evidence of loss of muscle mass (wasting)<br>• Oral or pharyngeal inflammation or pain<br>• Pallor (inner eyelids and palms) | | |
| **Medical history**<br>• GI problems (e.g., diarrhea, abdominal pain, nausea, vomiting)?<br>• Pattern of bowel movements (constipation)?<br>• Presence of opportunistic infection?<br>• Concurrent medical problems (e.g., diabetes, hypertension, malaria)? | | |
| **Medication profile**<br>• Drug use (ARVs, alternative therapies, and other medications)?<br>• Medication side effects with nutrition implications?<br>• Nutrition-medication interactions and traditional herbs or medicine interactions? | | |
| **Biochemical profile (where available)**<br>• Serum albumin<br>• CD4 and viral load counts | | |

| Did the counselor ask about: | YES | NO |
|---|---|---|
| • Evaluation of anemia (iron, $B_{12}$, and folate status) | | |
| **<u>Psychosocial</u>**<br>• Living environment and functional status (income, housing, amenities to cook, access to food, attitude regarding nutrition and food preparation)<br>• Age<br>• Family or support system<br>• Educational level<br>***Lactating mother:***<br>• Family or other support for breastfeeding.<br>• Breastfeeding pattern: Exclusive breastfeeding, mixed feeding (breastmilk and formula), breastfeeding during pregnancy | | |

## HANDOUT 6.4 Practical Considerations for Nutrition Counseling

1. Be aware and sensitive when counseling people living with HIV/AIDS. Remember that it is common for them to feel that HIV infection is controlling their life. The HIV-infected mother may be shocked, depressed, or frightened by this chronic disease. If the mother is an adolescent, pay close attention to other fears she may have. Make the mother feel comfortable by first determining her needs and wants during counseling and then working together to make a feasible plan.

2. Listen carefully, empathize, and respond to the mother's needs and concerns. This can make the difference between effective and ineffective nutritional care and support.

3. Be an active listener, avoid judgment, and be aware of body language (both yours and your client's).

4. Conduct assessments and interviews in a nonjudgmental manner to elicit more accurate responses from the mother and build rapport with her.

5. Maintain confidentiality and professional conduct throughout the counseling period and after the counseling session.

6. Change is difficult, and living with HIV is stressful. Suggest one change at a time and ensure that your recommendations are realistic. Remember that each woman has individual needs and a unique situation.

7. Communicate nutrition information based on the woman's own cultural values and beliefs. For example, be familiar with food taboos and help identify appropriate alternatives.

8. Provide practical suggestions, including a) a list of local, affordable, and accessible foods to show what kinds of foods the mother should eat or how much extra food she needs and b) ways to manage symptoms such as anorexia, diarrhea, nausea, vomiting, and weight loss.

9. Ask open-ended questions (what, why, and how) when counseling women about their diet.

10. Be aware of harmful traditional practices and practices that are not harmful and can be encouraged. Counsel and educate accordingly.

11. Praise and reaffirm what the mother is doing right to build self-confidence, self-esteem, and motivation.

*Source*: Adapted from Field-Gardner et al 1997

## HANDOUT 6.5 Checklist for Nutrition Counseling

This checklist can be used for field visits and role-playing with the case studies.

| **Did the counselor** | **YES** | **NO** |
|---|---|---|
| • Greet the client? | | |
| • Introduce himself or herself to the client? | | |
| • Treat the client with respect and acceptance? | | |
| • Listen carefully and actively and show empathy to the client's needs and concerns? | | |
| • Make eye contact when talking with the client? | | |
| • Take note of the verbal and non-verbal cues from the client? | | |
| • Ask open-ended questions? | | |
| • Praise and reaffirm the things the client is doing right? | | |
| • Suggest interventions that were acceptable, affordable, and feasible for the client? | | |
| • Communicate the nutrition information based on the client's level of knowledge and cultural values and beliefs? | | |
| • Provide practical and realistic suggestions and recommendations? | | |
| • Maintain professional conduct during the counseling session? | | |
| • Discuss appropriate follow up with the client? | | |

## HANDOUT 6.6 Safe Food Handling Practices

This handout can be used by students when role-playing to counsel on safe food handling practices.

| | |
|---|---|
| ▪ Wash hands thoroughly before preparing, handling, and eating food and after using the toilet or changing diapers or nappies | ▪ Keep food covered and stored away from insects, flies, rodents, and other animals |
| ▪ Wash and keep food preparation surfaces, utensils, and dishes clean | ▪ Use safe water (boiled or bottled) for drinking, cooking, and cleaning dishes and utensils. |
| ▪ Wash all fruit and vegetables with clean water before eating, cooking, or serving | ▪ Do not eat moldy, spoiled, or rotten foods |
| ▪ Avoid allowing raw food to come into contact with cooked food | ▪ Do not eat raw eggs or foods that contain raw eggs |
| ▪ Ensure all food is cooked thoroughly, especially meats and chicken | ▪ Serve all food immediately after preparation, especially if it cannot be kept hot |
| ▪ Avoid storing cooked food unless one has access to a refrigerator | ▪ Do not use bottles with teats to feed infants, use a cup instead |

*Source*: Lwanga 2001

## HANDOUT 6.7 Dietary Management of Common Problems in HIV Infection

This handout can be used during role-plays to help counsel on managing common HIV-related dietary problems.

| Dietary problem | Nutritional intervention |
|---|---|
| Anorexia or loss of appetite | ✓ Eat small frequent meals spaced throughout the day (5-6 meals/day).<br>✓ Schedule regular eating times.<br>✓ Include a food-based protein from either animal or plant sources, with snacks and meals whenever possible.<br>✓ Drink plenty of liquids, preferably between meals.<br>✓ Take walks before meals to stimulate appetite. |
| Sores in the mouth or throat | ✓ Avoid citrus fruits, tomatoes, and spicy, salty, sweet, or sticky foods.<br>✓ Drink liquids with a straw to ease swallowing.<br>✓ Eat foods at room temperature or cold.<br>✓ Eat soft, pureed, or moist foods such as porridge, mashed bananas, potatoes, carrots, or other non-acidic vegetables and fruits.<br>✓ Avoid smoking, caffeine, and alcohol.<br>✓ Rinse mouth daily to prevent thrush with 1 teaspoon baking soda mixed in a glass (250 ml) of warm boiled water. **Do not** swallow the mixture. |
| Nausea and vomiting | ✓ Avoid having an empty stomach, which makes the nausea worse.<br>✓ Eat small, frequent meals.<br>✓ Try dry, salty, and bland foods, such as dry bread or toast, or other plain dry foods and boiled foods.<br>✓ Drink plenty of liquids between meals rather than with meals.<br>✓ Avoid foods with strong or unpleasant odors, greasy or fried foods, alcohol, and coffee.<br>✓ Do not lie down immediately after eating; wait 1-2 hours.<br>✓ If **vomiting**, drink plenty of fluids to replace fluids and prevent dehydration. |

| Dietary problem | Nutritional intervention |
|---|---|
| Diarrhea | ✓ Eat small, frequent meals.<br>✓ Eat bananas, mashed fruit, soft, boiled white rice, and porridge, which help slow transit time and stimulate the bowel.<br>✓ Avoid intake of high fat or fried foods and foods with insoluble fiber; remove the skin from fruits and vegetables.<br>✓ Drink plenty of fluids (8-10 cups a day) at room temperature, especially those that contain some calories, such as diluted fruit juices.<br>✓ Avoid coffee and alcohol.<br>✓ Eat food at room temperature; very hot or very cold foods stimulate the bowels and diarrhea worsens.<br>✓ Limit or eliminate milk and milk products to see whether symptoms improve; for some people lactose intolerance may occur. but only for a short period during episodes of diarrhea.<br>**If diarrhea is severe**:<br>✓ Give oral rehydration solution to prevent dehydration.<br>✓ Withhold food for 24 hours or restrict food to clear fluids (e.g., soups, soft foods, white rice, porridge, and mashed fruit and potatoes). |
| Constipation | ✓ Drink plenty of fluids, especially water.<br>✓ Increase intake of fiber by eating vegetables and fruits.<br>✓ Do not use laxatives or enemas. |
| Bloating | ✓ Avoid foods associated with cramping and bloating (cabbage, beans, onions, green peppers, eggplant).<br>✓ Eat slowly and try not to talk while chewing. |
| Altered taste | ✓ Use a variety of flavor enhancers such as salt, spices, and herbs to increase taste acuity and mask unpleasant taste sensations.<br>✓ Try different textures of food.<br>✓ Chew food well and move around mouth to stimulate taste receptors. |

| Dietary problem | Nutritional intervention |
| --- | --- |
| Fever | ✓ Drink plenty of fluids throughout the day.<br>✓ Eat smaller, more frequent meals at regularly scheduled intervals.<br>✓ Add high-protein snacks between meals. |
| Fat malabsorption | ✓ Eliminate oils, butter, ghee, margarine, and foods that contain or are prepared with these.<br>✓ Trim all visible fat from meat and remove the skin from chicken.<br>✓ Avoid deep fried, greasy, or high fat foods.<br>✓ Eat smaller, more frequent meals spaced out evenly throughout the day.<br>✓ Take a daily multivitamin, if available. |
| Lack of energy or fatigue | ✓ If possible have someone pre-cook foods (ensure proper food safety of pre-cooked food).<br>✓ Eat smaller, more frequent meals and snacks throughout the day.<br>✓ Try to eat at the same time each day and exercise as much as possible to increase energy. |

Source: Lwanga 2001

## EXERCISE 6

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The following case studies will help students integrate aspects of nutritional care and support for HIV-infected pregnant and lactating women or adolescents in order to provide appropriate interventions. The following activities support the role-play:

- Field visits to antenatal clinics
- Field visits to VCT clinics
- Field visits to PMTCT clinics
- Mother support groups
- Open class discussion with a counselor or counselors working with pregnant or lactating HIV-infected women
- Other activities appropriate for the topic area

**TASK 1**: Ask students to role-play the following case study illustrating nutritional care and support of an HIV-positive pregnant woman. One student should take the role of the pregnant women and another, the role of the nutritional counselor.

Rachael is a 30-year-old school teacher in the second trimester of her pregnancy with her first child. During her antenatal visit, she tested positive for HIV. She lives with her husband, who has not been tested. She has not disclosed her status to him or anyone else. Her husband was recently laid off work, and Rachael tells you that her income is just enough to cover their basic needs. She usually eats one main meal a day and may have one to two snacks throughout the day. At present Rachael is asymptomatic.

Students should discuss the following questions about counseling Rachael. Answers are provided.

1. How could HIV infection affect Rachael's nutritional status?

   *HIV infection superimposes additional energy requirements on top of the extra energy and protein requirements caused by pregnancy. HIV also affects the immune system, making the infected person susceptible to infection and at high risk for morbidity and mortality.*

2. What are the nutritional goals for Rachael?

   - *Maintain or improve nutritional status*
   - *Ensure adequate weight gain during pregnancy*
   - *Ensure adequate nutrient intake*
   - *Prevent food-borne illness*
   - *Enhance quality of life*

3. What information and advice would you give Rachel about her nutrition?

   - *Eat a variety of locally available and affordable foods, including fruits and vegetables, regularly and take a multivitamin, if possible.*
   - *Eat more food than normal.*
   - *Increase the amount of food you eat in relation to your pregnancy and HIV status.*
   - *Pay particular attention to food safety and hygiene.*
   - *Consult a PMTCT clinic for counseling on infant feeding choices.*

3. What additional information would you need to help Rachael with appropriate interventions?

- *Her pre-pregnancy weight, if available*
- *Adequacy of the gestational weight she has gained*
- *Her dietary intake and food habits*
- *Medications or dietary or herbal supplements she is taking*
- *Problems affecting her food intake*
- *Support systems at home or at work*
- *Any other concurrent medical problems, e.g., diabetes, hypertension, fever, or malaria*
- *Her feelings on the interventions and which ones she thinks that she can and cannot do*

**TASK 2**: Ask students to role-play the following case study illustrating nutritional care and support of an HIV-positive adolescent. One student should take the role of the pregnant adolescent and another the role of the nutritional counselor.

Jennifer is a 15-year-old girl who just learned that she is HIV positive during her visit to the antenatal clinic. Her parents are aware of her pregnancy, but she has not told them that she is HIV positive. Jennifer was attending school but recently had to drop out because she was not feeling well. Her parents have three younger children, and their combined income is just enough to cover the families' needs. Jennifer does not know how much support her parents will give her to take care of the baby. She is in her first trimester of pregnancy when she comes to see you and admits to feeling frightened, alone, and depressed. She tells you that she smokes, has little appetite, and feels nauseated.

Students should discuss the following questions about the appropriate counseling for Jennifer. Answers are provided.

1. What nutritional care and support issues should you focus on for Jennifer?

- *Nutritional status, dietary intake, and food habits*
- *Communication with her partner about her HIV status and pregnancy*
- *Support from her parents, other family members, or partner*
- *Pre-pregnancy weight and height*
- *Lack of appetite and nausea*
- *Food security*
- *Knowledge of food and nutrition and HIV*
- *Referral systems to compliment the nutritional care and support*

2. What factors put Jennifer at high nutritional risk and why?

- *Young adolescent age increases nutritional requirements needed for adolescent growth and fetal growth*
- *HIV-infected status increases nutrient requirements*
- *Depression and fear can lead to decreased appetite and premature delivery*
- *Lack of appetite can result in inadequate gestational weight gain*
- *Nausea can decrease food intake, leading to inadequate nutrient intake*
- *Lack of income causes food security issues*
- *Smoking contributes to low birth weight, premature delivery, decreased appetite, and inadequate pregnancy weight gain*

3. What goals would you consider while counseling Jennifer and how would you achieve these goals?

- ***Adequate gestational weight gain***

  *Assess and monitor weight gain*

- ***Adequate nutrient intake***

  *Counsel on dietary management of nausea and ways to increase appetite to help improve intake*

  *Carry out a detailed nutrition assessment*

  *Counsel on healthy eating habits and intake of essential nutrients to promote growth and development of the fetus*

  *Counsel on avoiding cigarette smoking, which can reduce appetite and contribute to poor health outcomes for the baby*

  *Prevent food-borne illnesses*

  *Counsel on safe food handling, hygiene, and water safety*

**TASK 3:** Ask students to role-play the following case study illustrating nutritional care and support of an HIV-positive pregnant woman. One student should take the role of the pregnant woman and another, the role of the nutritional counselor.

A young couple, Jacob and Rita, come to the clinic. Rita is HIV positive and 5 months pregnant with her second child. Jacob's test results indicate that he is HIV negative. Rita is aware of her status but has not told Jacob. Both Rita and Jacob are employed. Rita has gained adequate gestational weight but tells you that she has diarrhea and nausea and finds it difficult to eat because she has sores in her mouth. In an earlier session, Rita revealed to you that she is afraid to tell Jacob her status because of her fear of being stigmatized by Jacob and her family and losing her job. She is not taking ARVs.

1. What factors should you address when counseling Rita and Jacob and how?

- *Rita's dietary intake and eating habits, by reinforcing what she is doing right*
- *Her plans to disclose her status to her partner, by addressing her fears about stigma, discrimination, and possible abuse*
- *Her nausea, diarrhea, and mouth sores, which affect her food intake, by counseling on how to manage these HIV problems*
- *Her plans for feeding her baby, by counseling on infant feeding options*
- *Her overall well-being and delivery of a term baby, by counseling on the Importance of good nutrition in the context of HIV*
- *Her need for support, by discussing sources of support other than her partner*
- *The effect of ARVs on preventing mother-to-child transmission of HIV, by asking whether she discussed prenatal and post-natal prophylaxis with her doctor*
- *Fear of being stigmatized, by counseling on community support systems*
- *Maintenance of adequate gestational weight gain*

2. What are the main nutritional goals for Rita?

- *Adequate gestational weight gain (especially with nausea, diarrhea, mouth sores, and anxiety about disclosing her status, which can affect nutritional intake)*
- *Dietary management of her common HIV problems*

2. What are the main nutrition interventions for Rita?

- *Counseling on how to manage nausea, diarrhea, and mouth sores to maximize nutritional intake and promote adequate gestational weight gain (see **Handout 6.7**: Dietary Management of Common Problems in HIV)*

- *Providing information on referral systems or refer her to psychosocial support to help her deal with disclosing her status and obtain general support during pregnancy and after delivery.*

**TASK 4:** Ask students to role-play the following case study illustrating nutritional care and support of an HIV-positive lactating woman. One student should take the role of the lactating woman and another, the role of the nutritional counselor.

Brenda, 25, comes to see you for the first time for counseling. She has a 2-month-old baby and tells you that she is breastfeeding. She has not had the courage to test for HIV, but her partner died 3 months earlier, and rumors suggest he died of AIDS. Brenda is living alone with her baby while on maternity leave. She tells you she is worried about how she will support herself and her baby on her small salary. She confides that she is worried about her health and has not been able to eat well. She feels she has lost weight because her clothes fit loosely. She does not have any nausea or vomiting, but does have diarrhea and fever. She also complains about being tired. She is very concerned about her weight loss and her inability to eat.

1. Identify and discuss nutritional care and support issues for Brenda.

    - *Food security because of her low income*
    - *Support systems she has in place*
    - *Her pre-pregnancy weight, current weight and height, and calculation of her body mass index (BMI)*
    - *Her knowledge of HIV and infant feeding, including her own nutrition*
    - *Her eating habits and dietary intake*
    - *Opportunistic infections that are causing fever*
    - *Medications or dietary supplements*

2. What interventions would you suggest to help Brenda?

- *Eating smaller, more frequent energy- and protein-dense meals to help promote weight gain and improve appetite*

- *Managing diarrhea, fever, and fatigue through diet*

- *Drinking plenty of fluids to prevent dehydration*

- *Maintaining as much physical activity as possible, because exercise helps stimulate appetite, decrease fatigue, and build lean body mass*

3. What other support or referrals would you suggest?

   - *VCT clinic to test her HIV status*

   - *PMTCT clinic for infant feeding counseling*

   - *A doctor if the fever and diarrhea persist*

   - *Food assistance, if available*

   - *Help from her family or community to take care of her baby so she can get some rest every day*

**TASK 5:** Organize field visits for students to enable them to:

- Conduct a nutritional assessment and nutrition counseling and education in various environments when working with HIV-infected pregnant and lactating women

- Describe at least three challenges in working with HIV-positive pregnant or lactating women or adolescents in limited-resource settings

- State at least two interventions to address the issues and challenges identified above

Divide the students into groups and assign each group to visit a different site that provides care for HIV-infected pregnant or lactating women or adolescents. Sites can include antenatal clinics, PMTCT clinics, health centers, or other appropriate settings. Establish a relationship with the different sites the students will visit. Arrange times for field visits and identify contact people for the students to see when they arrive. Inform the facilities of the objectives of this exercise.

Review the objectives of the field visits with the students and direct them to the sites. Arrange for them to observe a health worker conducting a nutritional assessment and nutrition counseling and education session. Allow each student to conduct at least one supervised nutritional assessment and nutrition counseling and education session with an HIV-infected pregnant or lactating woman or adolescent.

The number of students in a group may not allow each student to conduct a nutritional assessment and nutrition counseling session. Classroom role-plays can be used, or different appointments can be set up for individuals or smaller, more manageable, groups of students. Students who are unable to practice conducting a nutritional assessment during the field visit should act as observers, using the nutritional assessment checklist to provide feedback to fellow students.

Follow up the field visits by asking each group to present its experience to the rest of the class by answering the following questions:

- What type of nutritional care and support was provided to the HIV-infected mothers in the places they visited?

- How was the nutritional assessment or counseling session observed in the field different from what he students learned in class?
- What should be done differently and why?
- What challenges and issues did they observe in providing nutritional care and support, and how should they be addressed?
- What alternative approaches for nutritional assessment and counseling should be implemented at the sites visited?
- What issues and challenges did they face when they conducted the nutritional assessment and counseling sessions? What would they do differently next time?