

SESSION 9: NUTRITION CARE AND SUPPORT OF PREGNANT AND LACTATING WOMEN AND ADOLESCENTS LIVING WITH HIV

Purpose (slide 2)

The purpose of this session is to give students an understanding and knowledge of the special considerations for nutrition care and support for HIV-infected pregnant or lactating women and adolescent girls.

Learning objectives (slide 3)

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

- Explain how HIV infection increases the risk of malnutrition in HIV-infected pregnant or lactating women and adolescents in resource-limited settings.
- Describe the dietary requirements of HIV-infected pregnant or lactating women and adolescents.
- Describe the essential components of nutrition care of HIV-infected pregnant or lactating women and adolescents.
- Make appropriate recommendations for nutrition care and support of HIV-infected pregnant or lactating women and adolescents.
- Carry out a nutrition assessment and counsel on appropriate interventions based on the nutrition assessment for HIV-infected pregnant or lactating women and adolescents.
- Explain the challenges HIV-infected pregnant and lactating women face that increase their risk for malnutrition.

Prerequisite knowledge

- Session 1: Basic Facts about HIV/AIDS
- Session 4: Nutrition Management of HIV-Related Symptoms
- Counseling knowledge and skills
- Community support groups and structures

Estimated time: 140 minutes

Session guide (slide 4)

Content	Methodology	Activities	Estimated time (minutes)
Reasons to focus on women, nutrition, and HIV	Participatory lecture	Introduce the session and rationale.	10
Links between HIV and nutrition during pregnancy and lactation	Participatory lecture	Present and discuss the cycle of poor nutrition and infection.	15
Nutritional requirements of HIV-infected pregnant and lactating women and adolescents	Participatory lecture	Review the dietary needs of HIV-infected pregnant and lactating women and adolescents	15
Recommendations for nutrition care and support of HIV-infected pregnant or lactating women or adolescents	Participatory lecture	Present dietary recommendations for HIV-infected pregnant and lactating women and adolescents.	15
Goals and objectives of nutrition care and support for HIV-infected pregnant and lactating women and adolescents	Participatory lecture	Review the goals and objectives of nutrition care and support for pregnant and lactating women in the context of HIV.	15
Components of nutrition care and support for HIV-infected pregnant and lactating women	Participatory lecture Role-plays	Divide participants into groups and facilitate role-plays on counseling pregnant and lactating women on nutrition and HIV.	20
Issues and challenges in nutrition care and support of HIV-infected pregnant and lactating women and adolescents	Questions and answers	Facilitate discussion on issues and challenges in providing nutrition care and support for HIV-infected pregnant and lactating women and adolescents.	30
Discussion points	Questions and answers	Facilitate discussion on concepts in Session 9.	10
Conclusions			5
Review			5
Total time			140

Required materials

- Flipchart paper and stand
- Writing pens
- Overhead projector and transparencies or LCD projector and laptop

Materials provided

- PowerPoint 9
- **Handout 9.1. Guide to Nutrition Assessment of Pregnant and Lactating Women with HIV**
- **Handout 9.2. Checklist for Nutrition Assessment of Pregnant or Lactating HIV-infected Woman and Adolescents**
- **Handout 9.3. Practical Considerations for Nutrition Counseling**
- **Handout 9.4. Checklist for Assessing the Quality of Counseling of Pregnant or Lactating PLHIV**
- **Handout 9.5. Dietary Management of Common Problems in HIV Infection**
- **Handout 9.6. Essential Health Sector Actions to Improve Maternal Nutrition in Africa**
- Discussion Points 9

Preparation

1. Review Lecture Notes and PowerPoint 9.
2. Review the handouts, exercises, and Discussion Points to identify questions to help students master the concepts.

Suggested reading

American Dietetic Association and Dietitians of Canada. 2000. *Manual of Clinical Dietetics*. Sixth edition. Chicago.

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- Nduati R., et al. 2001. Effect of Breastfeeding on Mortality among HIV-1 Infected Women: A Randomized Trial. *Lancet* 357: 1651–55.
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- Samba-Ndure, K. 2001. *Women's Nutrition during Pregnancy and Lactation. Technical Update: Women and Adolescent Nutrition. West Africa Nutrition Focal Point Meeting*.
- Sedgh G., et al. 2004. Breastfeeding and Maternal HIV-1 Disease Progression and Mortality. *AIDS* 18: 1043–1049.
- Semba, R. D., and G. Gary. 2001. Pathogenesis of Anemia during Human Immunodeficiency Virus Infection. *Journal of Investigative Medicine* 49(3): 225–39.
- Semba, R. D., 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. *American Journal of Gastroenterology* 87(3): 265–73.

WHO. 2004. Nutrition Counseling Care and Support for HIV-Infected Women: Guidelines on HIV-Related Care, Treatment and Support for HIV-Infected Women and Their Children in Resource-Constrained Settings. Geneva.

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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. Undernourished women have higher reproductive risks and subsequently poorer pregnancy outcomes. In sub-Saharan Africa, where malnutrition is endemic, many women are malnourished even before pregnancy, and over 50 percent of women are HIV infected (UNAIDS 2004).

Undernutrition and HIV work in tandem, with undernutrition weakening the immune system and increasing vulnerability to infection and HIV compromising nutritional status and increasing vulnerability to infection. Improving nutritional status and food security for all, including HIV-infected pregnant and lactating women and adolescents, is a challenge for policymakers and health service providers.

Reasons to focus on nutrition and HIV in women (slides 5, 6, and 7)

HIV has been described as having the face of a woman: 13 African women are infected for every 10 African men (UNAIDS 2004), and 57 percent of adults in their most productive years (15–49 years old) living with HIV in sub-Saharan Africa are women. In sub-Saharan Africa a woman is 1.2 times more likely to be infected with HIV than a man, and young women 15–24 years old are 2.5 times more likely to be infected with HIV than young men of the same age. Biological, economic, social, and cultural factors increase women's vulnerability to HIV, and the burden of caring for HIV-infected children or other family members usually rests on women.

Good maternal nutrition is important to improve the health status of mothers and the survival and development of their children. However, for many African women, the reproductive years are periods of nutritional stress. Pregnancy-related health and nutrition problems can affect the quality of women's lives and the lives of their newborns. Undernourished women have high reproductive risks and poorer pregnancy outcomes than well-nourished women (Institute of Medicine 1990). 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.

Well-nourished women have healthier babies and a lower risk of maternal morbidity and mortality. For HIV-infected women, the effects of undernutrition and HIV increase poor clinical and birth outcomes. The nutritional status of an HIV-infected woman before, during, and after pregnancy may influence her own health and transmission of HIV to her infant. Nutrition care and support of HIV-infected pregnant or lactating women and adolescents promotes adequate gestational weight gain and aims to improve or maintain nutritional status, reduce maternal mortality, and delay HIV disease progression.

Links between HIV and nutrition during pregnancy (slides 8 and 9)

In all women, undernutrition during pregnancy increases maternal morbidity and mortality and affects birth outcomes. For HIV-infected pregnant women, as for all HIV-infected adults, HIV increases both energy requirements and the risk of undernutrition (see Session 3: Links between Nutrition and HIV). The increased energy needs as well the negative effects of common HIV-related infections increase the nutrition risk of HIV-infected pregnant and lactating woman. Studies in Africa have shown that an HIV-infected mother's nutritional status as

measured by body mass index (BMI), mid-upper arm circumference (MUAC) and/or weight loss is a strong predictor of post-natal mortality (Nduati et al 2001).

Iron deficiency anemia is a common micronutrient deficiency affecting more than half of all pregnant women in Africa. Anemia during pregnancy, regardless of the woman's HIV status, is a risk factor for pre-term delivery and low birth weight. Anemia is also common and more severe for HIV-infected people (Levine et al 2001) and is an independent predictor of rapid disease progression, increased risk of mortality, and mother-to-child transmission of HIV. The causes of anemia in HIV infection are many and complex. In developing countries anemia in pregnant or lactating women may result from poor dietary intake, poor absorption of iron or other vitamins such as folate and vitamin B₁₂, and co-infections such as malaria and hookworm. For HIV-infected pregnant women, 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 B₁₂ deficiency. A study of multivitamins plus iron and folic acid given during pregnancy to HIV-infected mothers resulted in increased weight gain during pregnancy, lower risk of low birth weight and pre-term delivery, and other positive related outcomes.

Links between HIV and nutrition during lactation (slide 10)

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

Although it has been suggested that that breastfeeding may be harmful to the health of the HIV-infected woman, there have been few studies on 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 after delivery than mothers who did not breastfeed. However, studies in South Africa (Coutsoudis et al 2001) and Tanzania (Sedgh et al 2004) 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 increased risk of mortality. More research is required before changing policy to advise against breastfeeding by HIV-infected mothers can be considered.

Links between HIV and nutrition for pregnant or lactating adolescents (slide 11)

Pregnancy increases nutrient requirements over the already elevated levels required by adolescents. The high nutrient needs of adolescents are due in part to adolescent growth. HIV increases energy requirements further. The HIV-infected pregnant or lactating adolescent is therefore at higher risk of undernutrition and should be monitored closely.

Improving nutrition before pregnancy should be a priority to achieve optimal birth outcomes and safeguard the health of the mother. This is a challenge because many adolescent girls do not use or have access to health services. This is also one of the reasons adolescents don't know they are infected with HIV until the disease is advanced.

Nutritional requirements of HIV-infected pregnant or lactating women and adolescent girls (slide 12)

For all women during pregnancy and lactation, energy, protein, and various micronutrient requirements increase to meet the demands for adequate gestational weight gain, growth and

development of the fetus, and milk production. For the HIV-infected pregnant and lactating woman, HIV can cause nutrient loss, malabsorption, and increased energy needs, further jeopardizing nutritional status.

Energy requirements (slide 13)

People living with HIV (PLHIV) should increase their energy consumption to help maintain body weight and physical activity. Energy needs increase further for pregnancy and lactation. An HIV-infected adult (pregnant or non-pregnant) requires **10 percent** more energy during the asymptomatic phase and **20–30 percent** more energy during the symptomatic phase (WHO 2003). Table 1 shows the energy requirements of non-HIV-infected women during pregnancy and lactation. The additional energy requirement for a HIV-infected woman should be calculated based on the energy needs of a non-pregnant, non-lactating woman, and then the additional energy requirement needed for pregnancy or lactation should be added.

Table 1. Additional energy requirements of non-HIV-infected women during pregnancy and lactation

Pregnancy	Lactation
285 kcal/day above non-pregnant level if physical activity is maintained 200 kcal/day above non-pregnant level if physical activity is reduced	Extra 500 kcal/day above non-lactating levels (increase if the mother is breastfeeding more than one child)

Source: FAO/WHO 1985. The FAO/WHO recommendations are commonly used in developing countries.

Example of energy requirements (slide 14)

If a 25-year-old moderately active 55-kg woman needs 2,140 kcal daily, an **asymptomatic** HIV-infected moderately active pregnant woman of the same age and weight will need approximately 2,140 kcal + 214 kcal (10 percent increase because of HIV) + 285 kcal (because of pregnancy) = 2,639 kcal daily. If she is **symptomatic** (e.g., has fever or diarrhea), then she will need 20–30 percent more energy (428 kcal-642 kcal) because to HIV, plus the 285 kcal because of pregnancy.

Protein requirements (slide 15)

Because no studies have demonstrated increased protein needs for PLHIV, WHO does not currently recommend that HIV-infected pregnant or lactating women increase their protein intake beyond the level for non-HIV-infected pregnant and lactating women. Further research is needed on this subject. Table 2 shows the protein requirements of non-HIV-infected women during pregnancy and lactation.

Table 2. Additional energy requirements of non-HIV-infected women during pregnancy and lactation

Pregnancy	Lactation
Average 6 g/day above non-pregnant levels throughout pregnancy	Extra 16g/day for the first 6 months of lactation, 12 g/day for the second 6 months, and 11 g/day thereafter

Source: FAO/WHO 1985. The FAO/WHO recommendations are commonly used in developing countries.

Fat requirements (slide 16)

The current recommendations for fat intake for PLHIV are the same as for non-HIV positive people. However, PLHIV experiencing chronic diarrhea may benefit from counseling to reduce their fat intake.

Micronutrient supplementation: Iron and folic acid (slide 17)

In many developing countries iron supplementation is recommended during pregnancy and lactation to prevent anemia and build fetal iron stores (table 3).

Table 3 Recommended iron and folic acid supplementation for pregnant women to prevent anemia (slide 18)

Local prevalence of anemia in pregnant women	Dose	Duration
< 40%	60 mg iron + 400 mcg folic acid daily (<i>where iron supplements containing 400 mcg folic acid are not available, an iron supplement with a lower level of folic acid may be used</i>)	6 months in pregnancy (<i>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</i>)
>40 %	60 mg iron + 400 mcg folic acid daily (<i>where iron supplements containing 400 mcg folic acid are not available, an iron supplement with a lower level of folic acid may be used</i>)	6 months in pregnancy plus 3 months post-partum (for a total of 9 months)

Source: WHO, UNICEF, and BASICS 1999.

There have been some concerns about giving iron supplements to PLHIV because some studies have shown that 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 countries with a high prevalence of both anemia and HIV.

Currently iron and folic acid supplements are recommended for all HIV-infected pregnant women as per national antenatal standards for pregnant (and sometimes lactating) women to reduce the risk of morbidity and mortality associated with iron deficiency anemia. However, HIV-infected women should not be given iron dosages above those recommended by WHO because high dosages of iron may contribute to HIV disease progression.

Micronutrient supplementation: Vitamin A (slide 19)

Vitamin A deficiency is common among African populations, including women. Several studies have looked at daily antenatal and post-natal vitamin A supplementation for HIV-infected

women, but none has shown a benefit in reducing vertical HIV transmission during pregnancy or during the post-partum period. Results of one study indicated an increased risk of vertical transmission by mothers receiving vitamin A supplements (Fawzi et al 2002).

The current WHO recommendation for vitamin A intake by HIV-infected women in endemic vitamin A-deficient areas is the same as that for non-HIV-infected women: a single high dose of vitamin A (200,000 µg) after delivery and no later than 6–8 weeks after delivery. The daily vitamin A intake of HIV-infected women during pregnancy and lactation should not exceed the RDA (770 µg/day).

Multiple micronutrient supplementation (slide 20)

Data are limited on other micronutrient intake for HIV-infected pregnant and lactating women. Fawzi et al (1998) studied the effects of multi-micronutrient intake on morbidity and survival 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 µg RE, or 5,000 IU, preformed vitamin A plus 30 mg or 5,000 µg RE of beta-carotene); a multivitamin containing folic acid, thiamin, riboflavin, niacin, and vitamins C, B₆, B₁₂, and E; both the vitamin A and multivitamin; or neither (placebo group). The study showed that 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. 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.

HIV-infected pregnant women experience more frequent micronutrient deficiencies. Nonetheless, high levels of supplements (usually greater than 10 times the recommended daily allowance) is not recommended because they 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 HIV-infected pregnant or lactating women, 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 vitamin A supplementation may increase the risk of HIV-1 transmission for the lactating HIV-infected mother (Fawzi et al 2002).

WHO recommends that micronutrient supplementation for HIV-infected women during pregnancy and lactation not exceed RDA levels. An adequate diet is the best way to achieve adequate micronutrient intake. However, where an adequate diet is not possible, a micronutrient supplement may be needed during pregnancy or lactation.

Nutrient requirements of HIV–infected pregnant or lactating adolescents (slide 21)

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.

The energy needs of a pregnant adolescent include energy needed for normal growth of the adolescent and weight gain needed for the pregnancy. Healthy pregnant adolescents need an extra 300 kcal/day in the second and third trimesters. Likewise, the American Dietetic Association and Dietitians of Canada (2000) recommend that pregnant adolescents eat at least 2,000 kcal/day. However, in many developing countries adolescent girls may not get adequate energy to meet their own growth and development needs, especially where food security is a significant concern. Therefore, many are already undernourished when they become pregnant. Consequently, it may be difficult for them to get more than the recommended 2,000 kcal/day to meet the demands of adolescent pregnancy.

Currently there is no separate energy recommendation for pregnant or lactating HIV-infected adolescents. The recommendation for pregnant and lactating women applies to adolescents (**10 percent** during asymptomatic infection and **20–30 percent** during symptomatic HIV infection) plus the additional energy required for pregnancy or lactation.

Adolescents require higher **protein** intakes during pregnancy because they themselves are continuing to grow. There are no current recommendations to increase protein intake for the HIV-infected pregnant or lactating adolescent girl beyond what a non-HIV-infected pregnant or lactating adolescent girl needs.

The RDA for protein for pregnant adolescents is 1.5 g/kg of body weight for girls 15–18 years old and 1.7 g/kg of body weight for girls 11–14 years old (Institute of Medicine 1990.)

The pregnant adolescent also has an increased need for **micronutrients** such as iron, folic acid, and zinc. If the diet is inadequate, the HIV-infected pregnant adolescent may benefit from a micronutrient supplement, where available, to help meet these increased needs. Micronutrient intakes should be at the RDA level according to WHO recommendations. Because anemia is also more prevalent among adolescent girls, iron and folic acid supplements should be provided to HIV-infected adolescents according to national standards for antenatal care to reduce the risk of morbidity and mortality associated with anemia. Likewise, vitamin A supplementation should follow current WHO guidelines, as previously noted.

Further research is needed to assess which nutrients are needed in what amounts for HIV-infected pregnant or lactating women or adolescents. Until there is clear guidance, the established nutritional requirements for normal pregnancy and lactation and the recommended increases in energy intake as a result of HIV infection should be followed. Additional requirements should be recommended based on individual nutrition assessments. Standard national guidelines for vitamin and mineral supplementation for pregnant and lactating women should be used in consultation with WHO recommendations for HIV-infected pregnant and lactating women for micronutrient supplementation.

Goals of nutrition care and support during pregnancy and lactation (slide 22)

The goals of nutrition care and support for pregnant or lactating women are to:

- Support the health and nutritional status of the mother
- Promote optimal birth outcomes
- Help reduce vertical transmission
- Strengthen immune systems
- Delay disease progression
- Enhance the quality of life

For all women, improving nutritional status before and during pregnancy can help ensure adequate gestational weight gain and decrease the risk of premature delivery and low birth weight. During pregnancy, nutrition care is needed to meet the demands of an 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, nutrition 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. For HIV-infected women, research indicates that adequate nutritional status may reduce vertical transmission by affecting several maternal or fetal and infant risk factors for transmission. Nutrition care and support also play an important role in the overall care of the pregnant or lactating woman and adolescent living with HIV.

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

Objectives of nutrition care and support (slide 23)

Nutrition care and support for HIV-infected pregnant or lactating women and adolescents aims to:

- **Maintain adequate weight:** This includes ensuring adequate weight gain during pregnancy, preventing excessive weight loss during lactation, and preserving lean body mass. A pregnant woman should gain at least 1 kg per month during the second and third trimesters.
- **Ensure adequate nutrient intake:** Women should try to improve nutrient intake first through eating a diverse diet that includes fruits, vegetables, animal source products, and fortified foods to help build stores of essential nutrients (both macronutrients and micronutrients). When the diet is insufficient, nutrition care and support should include providing appropriate micronutrient supplements.
- **Promote good hygiene and food safety:** Preventing food-borne illnesses is especially important for people with compromised immune systems.
- **Improve palliative care:** For PLHIV in the advanced stages of the disease, nutrition care and support can provide greater comfort and lessen suffering.

Components of nutrition care and support (slide 24)

Nutrition care and support for HIV-infected pregnant or lactating women and adolescents is a package that should include the following;

- Nutrition assessment
- Nutrition counseling
- Micronutrient supplementation
- Food provision (if needed)
- Food safety and hygiene
- Psychosocial support
- Referral to other services

Nutrition assessment (slide 25)

Nutrition assessment gathers information about the client to help guide decisions on nutrition care and support and referrals to other services to improve well-being. Nutrition assessment for pregnant and lactating women and adolescent girls should include the following:

- Anthropometric measurement (weight, weight gain, MUAC)
- Biochemical information (laboratory tests)
- Clinical information (appetite change, nausea, vomiting)
- Dietary information (24-hour food recall, quality of diet)
- Food security status (food availability and access)

Refer to **Handout 9.1. Guide to Nutrition Assessment of Pregnant and Lactating Women with HIV** and **Handout 9.2. Checklist for Nutrition Assessment of Pregnant or Lactating HIV-infected Woman and Adolescents.**

If the client is not gaining adequate weight (based on the information collected from the anthropometric assessment), the health service provider should determine the root causes, such as inadequate food intake because of HIV-related symptoms, an opportunistic infection, intra-household food distribution that excludes the woman, or household food insecurity. The information gathered during nutrition assessment helps determine the type of counseling or other services needed, including medical management of symptoms or food provision.

Nutrition counseling (slide 26)

Nutrition education and counseling should be an integral part of nutrition care and support of HIV-infected pregnant or lactating woman or adolescents. Health service providers can use information collected during nutrition assessments to fine-tune counseling and determine what other interventions are needed. Nutrition counseling and support can also be provided in the form of group educational talks. Topics for group talks may include food safety and hygiene, the importance of maintaining physical activity, the importance of fluids and hydration during lactation, and information on locally available nutrient-dense foods and food choices. Refer to **Handout 9.3. Practical Considerations for Nutrition Counseling** and **Handout 9.4. Checklist for Assessing the Quality of Counseling of Pregnant or Lactating PLHIV.**

Nutrition counseling for HIV-infected pregnant and lactating women and adolescent girls should focus on the following messages:

Increase food intake. A nutritious diet will help maintain proper functioning of the immune system and provide the extra energy needed for daily activities and gestational weight gain. The health service provider should encourage HIV-infected pregnant or lactating women or adolescent to snack regularly throughout the day and eat small but regular meals. Soft foods may be tolerated better during illness or nausea. Small but frequent meals will help ensure sufficient food intake to prevent weight loss and wasting.

Eat a variety of foods. The best way to improve diet and avoid deficiencies is to eat a variety of foods including the following:

- Dried legumes (beans, peas, beans, lentils, cowpeas, pigeon peas, groundnuts, and nuts)
- Meat, fish, milk products, or egg, if available
- Fruits and vegetables
- Fats in moderation
- Plenty of water

Manage symptoms and drug-food interactions. HIV-infected pregnant or lactating women and adolescents may suffer from symptoms that can make it difficult to maintain a nutritious diet. Many also take drugs that can have side effects such as taste changes, loss of appetite, diarrhea, nausea, and vomiting. These side effects can affect food intake, nutrient absorption, and nutritional status. If medications cause taste changes, HIV-infected pregnant and lactating women and adolescents can add flavor enhancers such as salt, sugar, spices, vinegar, or lemon to stimulate the taste buds, increase taste acuity, and mask unpleasant flavors. Eating energy- and nutrient-dense foods such as maize, groundnuts, and carrots and drinking plenty of fluids may help replace nutrient losses and prevent dehydration during fever or diarrhea. (Refer to **Handout 9.5. Dietary Management of Common Problems in HIV Infection** and **Session 5. Managing Drug and Food Interactions in HIV/AIDS Therapy.**)

Health service providers and counselors should be sensitive and try to remain objective and non-judgmental. The HIV-infected pregnant or lactating woman or adolescent may be in shock, depressed, or fatigued by the chronic disease. Making the mother feel comfortable by first finding out her needs and wants and working with her to make a feasible plan are essential for successful nutrition education and counseling.

Many people think counseling is giving information and advice. But counseling an HIV-infected pregnant woman or adolescent may involve more than providing information and advice on diet, nutrition, and healthy eating. The counselor may also help the mother address her feelings about having HIV. A counselor who understands how clients react to HIV can provide nutrition counseling to help them examine their options and make the best choices. This way, clients are more likely to comply with nutrition advice (ADA and DOC 2000; Field-Gardner et al 1997). An effective counselor must do the following:

- Build a trusting relationship with the client.
- Maintain professionalism and confidentiality at all times.
- Treat the client with respect and acceptance, avoiding being judgmental.
- Respect the client even if his/her attitudes, beliefs, and life choices do not agree with the counselor's.
- Listen carefully, empathize, and respond to the clients' needs and concerns.

- Remember that every client is unique and may respond differently to information.
- Be aware of harmful cultural foods, herbal remedies, traditional therapies, and practices and counsel and educate the mother.
- Be aware of community services and programs (e.g., food distribution programs, women's groups for psychosocial support) that may help nutritionally vulnerable women and establish links with these services and programs for future referral.

For the following exercises, students can use **Handout 9.4 Checklist for Assessing the Quality of Counseling of Pregnant or Lactating PLHIV** and **Handout 9.5. Dietary Management of Common Problems in HIV Infection**. The exercises will help them conduct a thorough nutrition assessment and analysis and make appropriate recommendations based on the assessment.

Exercise 1. Ask students to role-play nutrition care and support of an HIV-infected pregnant woman. Ask one student to role-play the pregnant woman, Rachel, and another to role-play the nutrition counselor.

Rachael is a 30-year-old teacher in the 2nd trimester of her pregnancy with her first child. At 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 says that her income is just enough to cover their basic needs. She usually eats one main meal and may have one or two snacks a day. Rachael is asymptomatic now, but her hemoglobin is on the low end.

Ask students to discuss the following questions about counseling Rachael (answers are provided in italics):

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

HIV infection adds 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 nutrition 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. During counseling and education, what information and advice would you give Rachel about her nutrition?

- *Regularly eat a variety of locally available and affordable foods, including fruits and vegetables, 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.*
- *Take iron and folate supplements as per national protocol and use iodized salt.*
- *Take antimalarial and antihelminthics as per national protocols.*

Exercise 1. Role-play, cont.

4. 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 about the interventions and which she thinks that she can and cannot do*

Exercise 2. Ask students to role-play providing nutrition care and support to an HIV-infected adolescent. Ask one student to role-play the pregnant adolescent and the other to role-play the counselor.

Jennifer is a 15-year-old girl who just learned that she was 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 family's needs. Jennifer does not know how much support her parents will give her to take care of the baby. She is in her 1st 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.

Ask students to discuss the following questions about the appropriate counseling for Jennifer. Answers are provided.

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

- *Nutritional status, dietary intake, and food habits, multivitamin supplementation and use of iodized salt*
- *Reduction of malaria and hookworm infection- provide anti malarial and antihelminthics as per national protocols*
- *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 issues*
- *Knowledge of food and nutrition and HIV*
- *Referral systems to compliment the nutritional care and support*

Exercise 2. Role-play, cont.

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

- *Young adolescent age increases nutritional requirements for adolescent 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 them?

- **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.
Counsel on preventing food-borne illnesses.
Counsel on safe food handling, hygiene, and water safety.

Exercise 3. Ask students to role-play nutrition care and support of an HIV-infected pregnant woman and her partner. Ask one student to role-play the pregnant woman, Rita, and another to role-play the nutrition 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 were 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. She is also complaining of fatigue. In an earlier session, Rita revealed to you that she is afraid to tell Jacob her status because of her fear of being rejected by Jacob and her family and losing her job. She is not taking ARVs.

Exercise 3. Role-play, cont.

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*
- *Rita's fatigue by doing a physical evaluation for anemia and measuring her hemoglobin. She may be iron deficient. Check if she has taken any iron supplements. Provide iron and folate supplementation as appropriate and encourage her to take a daily multivitamin.*
- *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 and how to involve 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 stigmatization, by referring to community support systems*
- *Maintenance of adequate gestational weight gain*

2. What are the main nutrition 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*

3. 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*
- *Providing information on referral systems or referring her to psychosocial support to help her deal with disclosing her status and get general support during pregnancy and after delivery*

Exercise 4. Ask students to role-play providing nutrition care and support for an HIV-infected lactating woman. Ask one student to role-play the lactating woman, Brenda, and another to role-play the nutrition 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. What are Brenda's nutrition care and support issues?

- *Food security because of her low income*
- *Her support systems*
- *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*

Micronutrient supplementation (slide 27)

HIV-infected pregnant and lactating women and adolescents can best meet their micronutrient needs by eating a diverse diet that includes fortified foods. However, pre-existing micronutrient deficiencies, deficiencies resulting from HIV, and the increased micronutrient demands of

pregnancy need to be addressed. This may include providing micronutrient supplements at 1 RDA to women whose diets are not sufficient.

Health service providers should collect clinical and dietary information from these women as a part of nutrition assessment to determine whether their diets are diverse enough to provide the necessary micronutrients. If not, micronutrient supplements should be prescribed following international or national guidelines. Where available, biochemical tests should be carried out for more accurate testing of micronutrient status.

Food provision (slide 28)

Studies have shown that undernutrition significantly increases mortality risk for PLHIV. Specialized food products help undernourished clients manage and address undernutrition. Severely malnourished clients should receive therapeutic food. (See Session 8: Nutrition Care and Support of Adults Living with HIV).

Many countries have programs for food provision for HIV-infected pregnant and lactating women and adolescents. Frequently these programs are linked to prevention of mother-to-child transmission of HIV (PMTCT) and antiretroviral treatment (ART) sites. Health service providers should be aware of food provision programs and know the eligibility criteria for these programs. They also should also be aware of national policies and protocols related to food provision.

Food safety and hygiene (slide 29)

Proper food safety and hygiene are important for HIV-infected pregnant and lactating women and adolescents because their immune systems are already weakened. Preventing water- and food-borne disease is crucial. Contaminated food and water can cause diseases that involve diarrhea and vomiting, which can deplete nutrients and decrease absorption. The following messages encourage women to maintain good hygiene:

General

- Drink only clean water that has been brought to a rolling boil to kill germs or treated with a chlorination product such as Water Guard and stored in a clean container with a lid.
- Wash hands with soap before and after touching foods and using the latrine.

Animal products

- Thoroughly cook all animal products (meat, chicken, pork, fish, and eggs).
- Avoid raw or soft-boiled eggs or undercooked meat.
- Thoroughly clean utensils and surfaces that have been in contact with uncooked foods.
- Cover meat, poultry, and fish with a clear cover or cloth and keep separate from other foods to avoid contamination.

Fruits and vegetables

- Use clean water to wash all fruits and vegetables thoroughly.
- If it is impossible to wash fruits and vegetables properly, remove the skin to avoid contamination.

- Cut out bruises on fruits and vegetables to remove any mold or bacteria that may be growing there.
- Avoid eating groundnuts and maize that are moldy, shriveled, or spotted.

Food storage and handling

- Keep areas where food is prepared free of flies and other insects.
- Cover uneaten food to avoid contamination.
- Keep hot foods hot and cold foods cold before eating.
- If food products have expiration labels, do not eat after the “best before” date has expired.
- Store cooked food at most for one day and reheat before eating.
- If you have a refrigerator, put all leftover foods in it.

Psychosocial support (slide 30)

HIV-infected women may suffer from depression, which can reduce their appetite and motivation to maintain their health. During the clinical assessment, the health service provider can focus on the client’s emotional state and how this affects diet.

HIV-infected women can benefit from extra emotional care and psychosocial support. They may face stigma in their homes and communities. Health service providers should provide such support and refer clients to community groups where available.

Referral (slide 31)

Health service providers can help HIV-infected pregnant or lactating women and adolescents determine what other services they need, such as food aid, group support, legal services, or livelihood skills training. Pregnant and lactating women must start making decisions about infant feeding options. This topic is addressed in detail in **Session 10: PMTCT and Infant Feeding**. If PMTCT services are not offered where the pregnant woman seeks care, the health service provider should make a referral. HIV-infected pregnant and lactating women should know where to access ART.

Contact points for nutrition care and support (slide 32)

HIV-infected pregnant or lactating woman or adolescents need regular nutrition assessment and early nutrition interventions. The following contact points with pregnant and lactating women in the health system provide an opportunity for nutrition care and support:

- Antenatal care
- Delivery and post-partum care
- Child health visits (both well-child and sick-child contacts)
- Family planning services
- HIV testing and counseling services

Each of these contact points provides an opportunity to provide nutrition assessment and counseling, care and support to help prevent malnutrition during pregnancy and improve reproductive health and child health outcomes.

Refer to **Handout 9.6. Essential Health Sector Actions to Improve Maternal Nutrition in Africa.**

Exercise 5. Organize field visits for students to enable them to:

- Conduct nutrition assessment, counseling, and education with HIV-infected pregnant and lactating women in various environments.
- Describe at least three challenges in working with HIV-infected pregnant or lactating women and adolescents in limited-resource settings.
- State at least two interventions to address the issues and challenges above.

Preparation

- Divide the students into groups and assign each group to visit a site that provides care for HIV-infected pregnant or lactating women and adolescents. Sites can include antenatal clinics, PMTCT clinics, health centers, or other appropriate settings.
- Inform the different sites of the objectives of this exercise and identify a contact person or people for the students when they go to visit.
- Arrange times for field visits.
- Review the objectives of the field visits with the students and direct them to the sites.
- Arrange for the students to observe health workers conducting nutrition assessment, counseling, and education. Allow each student to conduct at least one supervised nutrition assessment, counseling, and education session with an HIV-infected pregnant or lactating woman or adolescent. If there are too many students in the group for each to conduct a nutrition assessment and counseling session, use classroom role-plays or set up appointments 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 **Handout 9.2. Checklist for Nutrition Assessment of Pregnant or Lactating HIV-infected Woman and Adolescents** and **Handout 9.4. Checklist for Assessing the Quality of Counseling of Pregnant or Lactating PLHIV** 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 nutrition care and support was provided to the HIV-infected mothers in the places they visited?
- How was the nutrition assessment or counseling session different from what the students learned in class?
- What should be done differently and why?
- What challenges and issues did they observe in providing nutrition care and support, and how should they be addressed?
- How should the sites do nutrition assessment and counseling differently?
- What issues and challenges did they face when they conducted the nutrition assessment and counseling? What would they do differently next time?
- What other contact points can be used for nutrition assessment, counseling, and education of pregnant and lactating women?

Conclusions (slide 33)

Good maternal nutrition during pregnancy and lactation is important to improve the health status of mothers and the survival and development of their children. HIV increases the risk of undernutrition in HIV-infected pregnant and lactating women and adolescents.

Energy, protein, and various micronutrient requirements increase during pregnancy for gestational weight gain, fetal growth and development, and milk production. HIV can cause nutrient loss, malabsorption, and increased energy needs, further jeopardizing nutritional status. The goals of nutrition care and support for pregnant or lactating women are to support maternal health nutritional status, promote optimal birth outcomes, reduce vertical transmission, strengthen immunity, delay disease progression, and enhance quality of life. For all women, improving nutritional status before and during pregnancy can help ensure adequate gestational weight gain and decrease the risk of premature delivery and low birth weight. For HIV-infected women, adequate nutritional status may reduce vertical transmission by affecting several maternal or fetal and infant risk factors for transmission.

Components of nutrition care and support include nutrition assessment and counseling, micronutrient supplementation, food provision (if needed), food safety and hygiene, psychosocial support, and referral to other services. Contact points for nutrition care and support include antenatal care, delivery and post-partum care, child health visits, family planning, and HIV testing and counseling

Discussion points

1. What are the most important considerations for nutrition care and support for HIV-infected women pre-pregnancy, in the antenatal period, and during the post-partum period?
2. What nutrition considerations and interventions are important for the HIV-infected pregnant or lactating adolescent?
3. What are the most important practices for a health service provider to consider when providing nutrition care and support to an HIV-infected pregnant or lactating woman?
4. What challenges affect nutrition care and support of HIV-infected pregnant and lactating women in your country, community, and health facility?
5. What steps, if any, have been taken in your country, community, or health facility to address these challenges?
6. What is being done locally and nationally to address gender issues that exacerbate the impact of HIV on women?
7. What ideas do you have to address these issues?
8. Discuss the minimum a health service provider should do at each contact point to ensure good pre- and post-natal nutrition status for HIV-infected women.
9. Does your country have national nutrition care and support guidelines for PLHIV? If so, do they address the nutrition care of pregnant and lactating women?

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Handout 9.1. Guide to Nutrition Assessment of Pregnant and Lactating Women with HIV

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.

Diet, social and medical histories	<p>Diet history</p> <ul style="list-style-type: none"> • Dietary intake and adequacy (can be collected by 24-hour diet recall) • Eating habits and patterns • Food intolerance and aversions • Dietary problems (e.g., poor appetite, difficulty chewing and swallowing, gastrointestinal problems, pain in the mouth and gums) and other eating problems • Hygiene and safe food preparation and handling practices • Psychosocial factors contributing to inadequacy of intake, such as social isolation, depression, stigma, and inability to prepare food • Vitamin and mineral use <p>Social history</p> <ul style="list-style-type: none"> • Living environment and functional status (ability to take care of self and new baby) • Household food security (income, housing, amenities for cooking, access to food, attitude to nutrition and food preparation, age, family or support system, and educational level) • Physical activity level • For the lactating woman, information on family and breastfeeding patterns (exclusive breastfeeding, mixed feeding (breastmilk and formula), breastfeeding during pregnancy) <p>Medical history</p> <ul style="list-style-type: none"> • Gastrointestinal problems (e.g., diarrhea, heartburn, abdominal pain, bloating, nausea, vomiting) • Pattern of bowel movements (constipation or diarrhea) • Presence of opportunistic infection • Concurrent medical conditions (e.g., tuberculosis, diabetes, hypertension, malaria) • Past obstetric history (infant birth weights, lactation experience)
Anthropometrics	<ul style="list-style-type: none"> • Pregnant woman: Height, pre-pregnancy weight, weight gain during pregnancy (at least 1 kg per month in the 2nd and 3rd trimesters) • Lactating woman: Height, current weight, pre-pregnancy weight, weight during pregnancy and 6 weeks post-partum

	<p>(BMI < 18.5 indicates nutrition risk)</p> <ul style="list-style-type: none"> • Mid-upper-arm circumference (MUAC) for crude estimation of muscle wasting (< 23 cm indicates nutrition risk)
Medication review	<ul style="list-style-type: none"> • Drug use (ARVs, alternative therapies, and other medications) • Medication side effects with nutrition implications
Biochemical data (where available)	<ul style="list-style-type: none"> • Evaluation of anemia (iron [hemoglobin], B₁₂, and folate status) • CD4 and viral load counts
Clinical evaluation	<ul style="list-style-type: none"> • Screening for pallor (inner eyelids and palms) to help screen for iron deficiency anemia • Screening for oral or pharyngeal inflammation or pain • Screening for evidence of muscle loss (wasting)

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

Handout 9.2 Checklist for Nutrition Assessment of Pregnant or Lactating HIV-Infected Women or Adolescents

Diet, social and medical histories	Diet history	Yes	No
	<ul style="list-style-type: none"> • Dietary intake and adequacy (can be collected by 24-hour diet recall) • Eating habits and patterns • Food intolerance and aversions • Dietary problems (e.g., poor appetite, difficulty chewing and swallowing, gastrointestinal problems, pain in the mouth and gums) and other eating problems • Hygiene and safe food preparation and handling practices • Psychosocial factors contributing to inadequacy of intake, such as social isolation, depression, stigma, and inability to prepare food • Vitamin and mineral use 		
	<p>Social history</p> <ul style="list-style-type: none"> • Living environment and functional status (ability to take care of self and new baby) • Household food security (income, housing, amenities for cooking, access to food, attitude to nutrition and food preparation, age, family or support system, and educational level) • Physical activity level • For the lactating woman, information on family and breastfeeding patterns (exclusive breastfeeding, mixed feeding (breastmilk and formula), breastfeeding during pregnancy) 		
	<p>Medical history</p> <ul style="list-style-type: none"> • Gastrointestinal problems (e.g., diarrhea, heartburn, abdominal pain, bloating, nausea, vomiting) • Pattern of bowel movements (constipation or diarrhea) • Presence of opportunistic infection • Concurrent medical conditions (e.g., tuberculosis, diabetes, hypertension, malaria) • Past obstetric history (infant birth weights, lactation experience) 		
Anthropometrics	<ul style="list-style-type: none"> • Height • Weight • Weight gain during pregnancy 		
Medication review	<ul style="list-style-type: none"> • Medication review 		

Biochemical data (where available)	<ul style="list-style-type: none"> • Evaluation for anemia • Hemoglobin measure 		
Clinical evaluation	<ul style="list-style-type: none"> • Screening for pallor (inner eyelids and palms) • Screening for oral or pharyngeal inflammation or pain • Screening for evidence of muscle loss (wasting) 		

Handout 9.3. Practical Considerations for Nutrition Counseling

1. Be aware and sensitive when counseling people living with HIV. Remember that they commonly feel HIV is controlling their lives. An HIV-infected mother may be shocked, depressed, or frightened by this chronic disease. If she 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 way to encourage more accurate responses from the mother and build rapport with her.
5. Maintain confidentiality and professional conduct during and after the counseling session.
6. Change is difficult, and living with HIV is stressful. Suggest one change at a time and make realistic recommendations. 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 9.4 Checklist for Assessing the Quality of Counseling of Pregnant or Lactating PLHIV

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 with the client's needs and concerns?		
Make eye contact when talking with the client?		
Notice 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 9.5. Dietary Management of Common Problems in HIV Infection

Dietary problem	Nutrition intervention
Anorexia or loss of appetite	<ul style="list-style-type: none"> • Eat small frequent meals throughout the day (5-6 meals/day). • Schedule regular eating times. • Include food-based proteins from either animal or plant sources, with snacks and meals whenever possible. • Drink plenty of liquids, preferably between meals. • Take walks before meals to stimulate appetite.
Sores in the mouth or throat	<ul style="list-style-type: none"> • Avoid citrus fruits, tomatoes, and spicy, salty, sweet, sticky foods. • Drink liquids with a straw to ease swallowing. • Eat foods at room temperature or cold. • Eat soft, pureed, moist foods such as porridge, mashed bananas, potatoes, carrots, or other non-acidic vegetables & fruits. • Avoid smoking, caffeine, and alcohol. • Rinse mouth daily to prevent thrush with 1 tsp baking soda mixed in a glass (250ml) of warm boiled water. Do not swallow the mixture.
Nausea and vomiting	<ul style="list-style-type: none"> • Avoid having an empty stomach, which makes the nausea worse. • Eat small, frequent meals. • Try dry, salty, bland foods, (dry bread/toast, or other plain dry foods and boiled foods). • Drink plenty of liquids between meals rather than with meals. • Avoid foods with strong or unpleasant odors, greasy or fried foods, alcohol, and coffee. • Do not lie down immediately after eating; wait 1-2 hours. • If vomiting, drink plenty of fluids to prevent dehydration.
Diarrhea	<ul style="list-style-type: none"> • Eat small, frequent meals. • Eat bananas, mashed fruit, soft, boiled white rice, or porridge to slow transit time and stimulate the bowel. • Avoid eating high-fat or fried foods and foods with insoluble fiber; remove the skin from fruits and vegetables. • Drink plenty of fluids (8–10 cups a day) at room temperature, especially fluids with calories, such as diluted fruit juices. • Avoid coffee and alcohol. • Eat food at room temperature; very hot or cold foods stimulate the bowels and diarrhea worsens. • Limit or eliminate milk and milk products to see whether symptoms improve; lactose intolerance may occur but for a short period. <p>If diarrhea is severe:</p> <ul style="list-style-type: none"> • Give oral rehydration solution to prevent dehydration. • Withhold food for 24 hours or restrict food to clear fluids (soups, soft foods, white rice, porridge, and mashed fruit and potatoes).

Dietary problem	Nutrition intervention
Constipation	<ul style="list-style-type: none"> • Drink plenty of fluids, especially water. • Increase fiber intake by eating vegetables and fruits. • Do not use laxatives or enemas.
Bloating	<ul style="list-style-type: none"> • Avoid foods associated with cramping and bloating (cabbage, beans, onions, green peppers, eggplant). • Eat slowly and try not to talk while chewing.
Altered taste	<ul style="list-style-type: none"> • Use a variety of flavor enhancers such as salt, spices, and herbs to increase taste and mask unpleasant tastes. • Try different textures of food. • Chew food well and move around mouth to stimulate taste receptors.
Fever	<ul style="list-style-type: none"> • Drink plenty of fluids throughout the day. • Eat smaller, more frequent meals at regularly scheduled intervals. • Add high-protein snacks between meals.
Fat malabsorption	<ul style="list-style-type: none"> • Eliminate oils, butter, ghee, margarine, and foods that contain or are prepared with these. • Trim all visible fat from meat and remove the skin from chicken. • Avoid deep fried, greasy, or high fat foods. • Eat smaller, more frequent meals spaced out evenly throughout the day. • Take a daily multivitamin, if available.
Lack of energy or fatigue	<ul style="list-style-type: none"> • If possible have someone pre-cook foods (ensure proper food safety of pre-cooked food). • Eat smaller, more frequent meals and snacks throughout the day. • Try to eat at the same time each day and exercise as much as possible to increase energy.

Source: Lwanga 2001.

Handout 9.6. Essential Health Sector 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 HIV-infected mothers.

Outcome	Essential health sector actions	Maternal actions
1. Adequate food intake during pregnancy and lactation	<ul style="list-style-type: none"> • Encourage increased food intake during pregnancy and lactation. • Monitor weight gain in pregnancy. • Counsel on reduced energy expenditure. 	<ul style="list-style-type: none"> • Eat at least one extra serving of staple food per day during pregnancy and the equivalent of an extra meal per day during lactation. • Gain at least 1 kg per month in the 2nd and 3rd trimesters of pregnancy. • Rest more during pregnancy and lactation.
2. Adequate micronutrient intake during pregnancy and lactation	<ul style="list-style-type: none"> • Counsel on diet diversification. • Prescribe and make accessible iron and folic acid supplements. • Assess and treat severe anemia in women. • Distribute vitamin A to post-partum women. 	<ul style="list-style-type: none"> • Increase daily consumption of fruits and vegetables, animal products, and fortified foods, especially during pregnancy and lactation. • Consume daily supplements (60 mg iron + 400 mg folic acid or multiple vitamin/mineral supplements) during pregnancy and the first 3 months post-partum. • IF anemic, take a daily dose of 120 mg iron + at least 400 mg folic acid for 3 months. • Take a high dose (200,000 IU) of vitamin A immediately after delivery or in the first 8 weeks after delivery if breastfeeding, and within 6 weeks after delivery if not breastfeeding.

Outcome	Essential health sector actions	Maternal actions
3. Reduced malaria infection in pregnant women in endemic areas	<ul style="list-style-type: none"> • Prescribe and make accessible anti-malaria curative or prophylactic drugs to pregnant women according to local recommendations • Treat clinical infections • Promote use of insecticide-treated materials 	<ul style="list-style-type: none"> • In the 2nd and 3rd trimesters, take antimalarial drugs as a curative treatment regardless of symptoms OR take weekly anti-malarial prophylaxis starting at the 1st antenatal visit. • Seek treatment for fever during pregnancy; take drugs to treat malaria and reduce fever; take iron/folic acid supplements for anemia. • Use insecticide-treated materials.
4. Reduced hookworm infection in pregnant women in endemic areas	<ul style="list-style-type: none"> • Counsel on preventative measures (sanitation and footwear). • Prescribe and make accessible anthelmintics after 1st trimester of pregnancy. 	<ul style="list-style-type: none"> • Wear shoes and dispose of feces carefully to prevent infection. • Take a single dose of Albendazole (400 mg) or Mebendazole (500 mg) in the 2nd trimester of pregnancy (> 50% prevalence).
5. Birth spacing of 3 years or longer	<ul style="list-style-type: none"> • Promote optimal breastfeeding practices. • Promote family planning as a health and nutrition intervention; counsel on the need for a recuperative period to build energy and micronutrient stores • Consider breastfeeding status when prescribing contraception. • Promote safer sex. 	<ul style="list-style-type: none"> • Initiate breastfeeding in the 1st hour after birth, breastfeed exclusively for 6 months, and continue breastfeeding for 2 years or more. • 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 subsequent pregnancy. • Use contraceptives that protect breastfeeding.

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

Session 9: Nutrition Care and Support for Pregnant and Lactating Women and Adolescents Living with HIV



Purpose

To provide understanding and knowledge of special considerations for nutrition care and support of HIV-infected pregnant and lactating women and adolescent girls

2

Learning Objectives

- Explain how HIV increases pregnant or lactating women's risk of malnutrition.
- Describe the dietary requirements of HIV-positive pregnant or lactating women.
- Describe the essential components of nutrition care and support for HIV-positive pregnant or lactating women.
- Make dietary recommendations for HIV-positive pregnant or lactating women.
- Carry out nutrition assessment and counseling for HIV-positive pregnant or lactating women.
- Explain challenges faced by HIV-positive pregnant or lactating women that increase the risk of malnutrition.

3

Session Outline

- Reason to focus on women, nutrition, and HIV
- Links between HIV and nutrition during pregnancy
- Nutritional requirements of HIV-positive pregnant and lactating women and adolescent girls
- Goal, objectives, and components of nutrition care and support
- Nutrition counseling in the context of HIV
- Ensuring adequate nutrition care and support
- Issues and challenges in nutrition care and support

Reasons to Focus on Women, Nutrition, and HIV

- 13 African women are infected with HIV for every 10 African men (UNAIDS 2004).
- Women 15–24 years old are 2.5 times more likely to be infected than men of the same age.
- 57% of adults living with HIV in sub-Saharan Africa are women 15–49 years old.
- 15 million women in sub-Saharan Africa are living with HIV.

5

Reasons to Focus on Women, Nutrition, and HIV (Cont.)

- Women and girls are more vulnerable to HIV because of biological factors, limited economic opportunities and health care, and low social status that limits their ability to choose healthier life strategies.
- Women bear the greatest impact of HIV: taking care of the sick, losing jobs and income, quitting school, and facing stigma and discrimination

6

Reasons to Focus on Women, Nutrition, and HIV (Cont.)

- Malnourished women have greater reproductive risk and poorer pregnancy outcomes than well-nourished women.
- In Africa HIV complicates endemic malnutrition.
- Effects of malnutrition and HIV increase poor clinical and birth outcomes for HIV-positive pregnant or lactating woman
- Nutritional status before, during, and after pregnancy may affect women's health and risk of transmitting HIV to their infants.

7

Links between HIV and Nutrition during Pregnancy

- In all women, malnutrition increases maternal morbidity and mortality and affects birth outcomes.
- HIV causes nutrient loss and increases energy requirements and the risk of malnutrition.
- Studies of HIV-positive mothers in Africa showed that nutrition status was a strong predictor of post-natal mortality (Nduati et al 2001).

8

Links between HIV and Nutrition during Pregnancy (Cont.)

- Pregnant women are most vulnerable to iron-deficiency anemia, which is:
 - A risk factor for pre-term delivery and low birthweight
 - Common and more severe with HIV
 - An independent predictor of rapid disease progression and higher risk of mortality and MTCT.
- HIV-infected pregnant women given multivitamins with iron and folic acid gained more weight during pregnancy and had lower risk of low birth weight and pre-term labor.

9

Links between HIV and Nutrition during Lactation

- The higher energy demands of lactation may increase weight loss, a risk factor for reduced HIV survival.
- HIV-infected woman have a higher risk of malnutrition and possibly mortality.
 - No conclusive evidence that HIV-1-infected women who breastfeed are at increased risk of mortality (WHO)
 - Further research needed on the impact of breastfeeding on maternal HIV progression

10

Links between HIV and Nutrition for Pregnant or Lactating Adolescents

- Young maternal age (11–18) increases nutrient needs above the demands of pregnancy because of adolescent and fetal growth.
- HIV further increases nutrient needs.
- Nutritional requirements increase overall to ensure
 - Continued growth of the adolescent mother
 - Growth and development of the fetus
 - Fulfillment of the increased demands on the body due to HIV infection

11

Nutritional Requirements of HIV-Positive Pregnant and Lactating Women and Adolescents

- In pregnancy lactation, energy, protein, and micronutrient requirements increase for:
 - Adequate gestational weight gain
 - Fetal growth and development
 - Milk production
- HIV causes nutrient loss and malabsorption, further increasing nutritional needs.
- Nutritional requirements for pregnancy and lactation are added to requirements for HIV.

12

Energy Requirements

- The increased energy requirement of HIV
 - 10% increase during asymptomatic HIV
 - 20–30% increase during symptomatic HIV
- Is added to the increased energy requirement of pregnancy or lactation
 - 200–285 kcal/day for pregnancy
 - 500 kcal/day for lactation

13

Examples of Energy Requirements

Non-pregnant, moderately active woman	25 yrs old, 55 kg	2,140 kcal/day
Kcal above non-pregnant level	If physical activity maintained	285 kcal/day (FAO/WHO)
Pregnant non-HIV-infected woman	2140 + 285 = 2,425 kcal/day	
HIV-infected pregnant woman Asymptomatic	10% increase in energy due to HIV = 214 kcal	2,140 + 285 + 214 = 2,639 kcal/day
HIV-infected pregnant woman Symptomatic	20–30% increase in energy due to HIV = 428–642 kcal	2,140 + 285 + (428 kcal – 642 kcal) = 2,853–3,067 kcal

14

Protein Requirements

- Protein intake for HIV-infected pregnant or lactating women should be the same as for non-infected pregnant or lactating women (WHO/FAO 1985).
 - 6 g/day above non-pregnant levels throughout pregnancy
 - 16 g/day above non-lactating levels during first 6 months of lactation, 12 g/day the next 6 months, then 11 g/day

15

Fat Requirements

- Fat intake for HIV-infected pregnant or lactating women should be the same as for non-infected pregnant or lactating women.
- PLHIV with chronic diarrhea may be counseled to lower fat intake.

16

Micronutrient Supplementation: Iron and Folic Acid

- Recommended as per national standards for antenatal care for all pregnant women
- Iron dosage should not exceed WHO recommended dosage.
- High dosage of iron may contribute to HIV disease progression.

17

Recommendations for Iron and Folic Acid Supplementation

Local prevalence of anemia in pregnant women	Dose	Duration
< 40%	60 mg iron + 400mcg folic acid daily	6 months in pregnancy (if started late, extend to post-natal period for 6 months. If not possible, increase dose to 120 mg in pregnancy)
> 40%	60 mg iron + 400 mcg folic acid daily	6 months in pregnancy plus 3 months post-partum (for a total of 9 months)

Source: WHO, BASICS, UNICEF 1999

18

Micronutrient Supplementation: Vitamin A

- Same for HIV infected women as for non-HIV infected women
 - Single dose (200,000 IU) given after delivery and no later than 6–8 weeks after delivery
 - Daily intake by HIV-infected women during pregnancy and lactation not to exceed RDA (770 µg/d)

19

Multiple Micronutrient Supplementation

- Limited data on multiple micronutrient supplementation of HIV-positive pregnant and lactating women
- Some evidence of an association with reductions in adverse pregnancy outcomes
- Toxicity possible from high levels of supplements (>10x RDA)
- Should not exceed RDA levels

20

Nutrient Requirements of HIV-Infected Pregnant or Lactating Adolescents

- Energy
 - Energy needs for normal growth of the adolescent plus weight gain needed for the pregnancy
 - Recommended energy increase due to HIV for pregnant and lactating women
- Higher protein intake (no current recommendation to increase protein due to HIV)
- Micronutrient supplementation at the RDA level²¹

Goals of Nutrition Care and Support during Pregnancy and Lactation

- Support the health and nutritional status of the mother.
- Promote optimal birth outcomes.
- Help reduce vertical HIV transmission.
- Strengthen the immune system.
- Delay disease progression.
- Enhance quality of life.

22

Objectives of Nutrition Care and Support

Maintain adequate weight

- Promote 1 kg/month gain during 2nd and 3rd trimesters.
- Prevent excessive weight loss during lactation.
- Preserve lean body mass.

Ensure adequate nutrient intake

- Promote a diverse diet.
- Provide micronutrient supplements if needed.

Promote good hygiene and water and food safety

- Prevent food-borne illness.

Improve palliative care

- Lessen suffering in advanced stages of HIV disease.²³

Components of Nutrition Care and Support

- Nutrition assessment
- Nutrition counseling
- Micronutrient supplementation
- Food provision (if needed)
- Food safety and hygiene
- Psychosocial support
- Referral to other services

24

Nutrition Assessment

- Anthropometric measurement (weight, weight gain, MUAC)
- Biochemical information (lab data)
- Clinical information (appetite changes, nausea, vomiting)
- Dietary information (24-hour recall, quality of diet)
- Food security status (food availability and access)

25

Nutrition Counseling Messages

- Increase food intake.
- Eat a variety of foods.
- Manage symptoms and drug-food interactions.

26

Micronutrient Supplementation

- A varied diet is the best way to avoid micronutrient deficiencies.
- Micronutrient supplementation should be at 1 RDA.
- Iron/folic acid and vitamin A supplementation should follow international or national guidelines.

27

Food Provision

- Malnutrition significantly increases mortality risk for PLHIV.
- Specialized food products can help HIV-infected pregnant and lactating women manage undernutrition.
- Health service providers should know about local food provision programs and eligibility criteria and follow national policy and protocols.

28

Food Safety and Hygiene Messages

- Drink only clean water brought to a rolling boil.
- Wash hands with soap.
- Thoroughly cook animal products.
- Wash all fruits and vegetables.
- Cover uneaten food.

29

Psychosocial Support

- Health service providers should provide psychosocial support and refer clients to community groups where possible.
- Depression can decrease appetite.
- Nutrition assessment should collect information on the client's emotional state and how this affects diet.

30

Referral to Other Services

- PMTCT
- ART
- Food aid
- Support groups
- Legal services
- Livelihood skills training

31

Contact Points for Nutrition Care and Support

- Antenatal care
- Delivery and post-partum care
- Child health visits (well/sick child contacts)
- Family planning services
- HIV testing and counseling services

32

Conclusions

- Good nutrition is important during pregnancy and lactation to improve maternal health and infant survival and development.
- Energy, protein, and micronutrient requirements increase during pregnancy for gestational weight gain, fetal growth, and milk production.
- Nutrition care and support include assessment and counseling, micronutrient supplementation, food provision (if needed), food safety and hygiene, psychosocial support, and referral.
- Contact points for nutrition care and support are antenatal care, delivery and post-partum care, child health visits, family planning, and HIV testing and counseling.

33