



The United States President's
Emergency Plan for AIDS Relief

Report on Food and Nutrition for People Living with HIV/AIDS

May 2006

The President's Emergency Plan for AIDS Relief
Report on Food and Nutrition for People Living with HIV/AIDS
Report to Congress Mandated by House Report 109-265
Accompanying H.R. 3057



Submitted by the Office of the U.S. Global AIDS Coordinator
U.S. Department of State
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House Report 109-265, accompanying H.R. 3057 called upon the Office of the United States Global AIDS Coordinator to report as follows:

The conferees urge the Office of the Global AIDS Coordinator to develop and implement a strategy, in coordination with groups responsible for issues of nutrition, such as USAID, the Department of Agriculture, the World Food Program, and the Food and Agriculture Organization, to address the nutritional requirements of those on antiretroviral therapy. The conferees ask the Office of the Global AIDS Coordinator, in collaboration with USAID, to consult with and report to the Committees on Appropriations not later than 180 days after the enactment of this Act on the following for the Global HIV/AIDS Initiative "focus" countries: (a) The number of Global HIV/AIDS Initiative beneficiaries on antiretroviral therapy; (b) The impact of food and nutrition on care and treatment; and (c) A strategy to address the nutritional requirements of persons receiving care and treatment.

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Acronyms and Abbreviations

AIDS	Acquired Immune Deficiency Syndrome
AFASS	Acceptable, feasible, affordable, sustainable and safe
ART	Antiretroviral therapy
ARV	Antiretroviral
BMI	Body Mass Index
CBO	Community-Based Organization
CCC	Comprehensive Care Clinic
CCM	Country Coordinating Mechanism
CCP	Community of Concerned Partners (Vietnam)
CDC	Centers for Disease Control and Prevention
COP	Country Operational Plan
EGAT	Bureau for Economic Growth, Agriculture and Trade
Emergency Plan	President's Emergency Plan for AIDS Relief
FAO	Food and Agricultural Organization
FAS	Foreign Agricultural Services
FBO	Faith-Based Organization
FFP	Food For Peace
FY	Fiscal Year
GH	Bureau for Global Health
Global Fund	Global Fund to Fight AIDS, Tuberculosis and Malaria
HAART	Highly Active Antiretroviral Treatment
HHI	HAART 'n' Harvest Initiative
HHS	(Department of) Health and Human Services
HIV	Human Immunodeficiency Virus
HRSA	Human Resources and Services Administration
ICC	Interagency Coordinating Committee
M&E	Monitoring and Evaluation
MCH	Maternal Child Health
MOH	Ministry of Health
MTCT	Mother to Child Transmission
NIH	National Institutes of Health
OGAC	Office of the U.S. Global AIDS Coordinator
OIs	Opportunistic Infections
OVCs	Orphans and Vulnerable Children
PLWHA	People Living With HIV/AIDS
PMTCT	Prevention of Mother-to-Child Transmission
PVOs	Private Voluntary Organizations
RDA	Recommended Daily Allowances
TB	Tuberculosis
TWG	Technical Working Group
UN	United Nations
UNAIDS	Joint U.N. Program on HIV/AIDS
UNICEF	U.N. Children's Fund
USAID	U.S. Agency for International Development
USDA	U.S. Department of Agriculture
USG	U.S. Government
WIC	Special Supplemental Nutrition Program for Women, Infants, and Children
WFP	World Food Program
WHO	World Health Organization

Executive Summary

According to the World Health Organization (WHO), nutritional support is an integral part of a comprehensive response to HIV/AIDS. There is evidence that nutrient intake can improve antiretroviral absorption and tolerance.¹ Receiving appropriate nutrition can help improve the health and quality of life of HIV-infected individuals.² Individuals who receive antiretroviral therapy (ART) with appropriate nutrition are more likely to regain weight and more likely to adhere to their medications, thus helping them rejoin the work force and improve food security for themselves and their families.³

This document presents a U.S. Government (USG)-wide approach for addressing food and nutrition needs of PLWHA receiving treatment and care. Recognizing that this is too large and complex a problem for any one agency to handle on its own, the Office of the Global AIDS Coordinator (OGAC) is partnering with other U.S. government agencies, including the U.S. Agency for International Development (USAID), the U.S. Department of Agriculture (USDA), the U.S. Department of Health and Human Services (HHS), and the Peace Corps, as well as relevant UN agencies and the private sector, to leverage resources to carry out supplementary feeding, micronutrient supplementation, and food security and livelihood support. Through partnerships, PEPFAR addresses the needs of HIV-affected communities, especially affected families and caregivers of PLWHA. Furthermore, PEPFAR are strengthens coordination at the country level in order to facilitate the implementation of these programs and to improve monitoring and evaluation.

Many parts of the world most severely affected by HIV have long been plagued by systemic and chronic food insecurity, and there is a complex interrelationship between AIDS and food insecurity. The Emergency Plan has a clear responsibility to prevent, treat and care for people with

¹ Raiten, DJ, Grinspoon S, Arpadi S. "Nutritional Considerations in the Use of ART in Resource-limited Settings." WHO 2005. (http://www.who.int/nutrition/topics/consultation_nutrition_and_hivaids/en/)

² Kotler DP, Tierney AR, Culpepper-Morgan JA, Wang J, Pierson RN Jr. "Effect of Home Total Parenteral Nutrition on Body Composition in Patients with Acquired Immunodeficiency Syndrome." *J Parenter Enteral Nutr* 1990; 14:454-458; Melchior J, Chastang C, Gelas P, Carbonnel F, Zazzo JF, Boulier A, et al. "Efficacy of 2-month Total Parenteral Nutrition in AIDS Patients: a Controlled Randomized, Prospective Trial." *AIDS* 1996; 10:379-384.

³ Shabert J, Winslow C, Lacey J, Wilmore D. Glutamine-antioxidant supplementation increases body cell mass in AIDS patients with weight loss: a randomized, double-blind controlled trial. *Nutrition*. 1999; 15:860-4; Lo W, MacGovern T, Bradford J. Association of ancillary services with primary care utilization and retention for patients with HIV/AIDS. *Aids Care* 2002; 14 (Suppl 1):S45-S57.

HIV and AIDS, but comprehensively addressing issues of food insecurity is beyond the scope of the Emergency Plan. Yet, PEPFAR recognizes that specific and targeted nutrition interventions can be integrated within HIV/AIDS treatment and care programs in an effort to improve outcomes for PLWHA. A key precept of the Emergency Plan is to remain focused on HIV/AIDS, provide support for food only in limited circumstances and maximize leverage with other donors who provide food resources. These donors include other agencies, organizations and international partners that have strong comparative advantages and non-HIV funding to address the underlying causes of food insecurity and to provide direct food assistance [these entities include: the USAID (Title II and agricultural development assistance), the USDA (Food for Progress, Food for Education and market development assistance), and the World Food Program (with USG Title II and funding support)].

In cases where there is evidence of clinical malnutrition and no other food support resources available, the Emergency Plan supports limited therapeutic feeding to malnourished AIDS patients, especially during ART. The Emergency Plan also prioritizes meeting the nutritional needs of malnourished HIV-positive pregnant and lactating women, as well as malnourished orphans and vulnerable children born to HIV-positive parents. This strategy also promotes linkages to food security and livelihood assistance activities, since a focus of the Emergency Plan is to build local capacity to provide long-term, sustainable HIV/AIDS prevention, care and treatment programs.

The goal of this strategy is to work through partnerships to meet certain immediate food and nutritional needs of malnourished PLWHA, in order to improve adherence to and efficacy of ART and treatment for opportunistic infections (e.g. TB), to help PLWHA regain their health and strength and return to productive activities, and to improve the quality of life of those who are infected and affected by HIV.

Introduction

More than 40 million people are living with HIV throughout the world, including the approximately 5 million newly infected in 2005, according to UNAIDS. Over 25 million have lost their lives to the disease, leaving behind orphaned children and ravaged communities.

The greatest burden of the disease is concentrated in developing countries least able to cope. The countries of sub-Saharan Africa and the Caribbean are home to approximately 30 million people living with HIV/AIDS. In these regions, HIV/AIDS has deepened poverty, exacerbated food insecurity, and diverted state resources.

In response to the challenge of global HIV/AIDS, the U.S. President's Emergency Plan is committed to supporting the prevention of 7 million new infections, treatment for 2 million HIV-infected people, and care for 10 million people infected and affected by HIV/AIDS, including orphans and vulnerable children (OVCs).

Comprehensive care and treatment are essential to the health and well-being of PLWHA. In fiscal year 2005, working in partnership with host governments; non-governmental, civil society and faith-based organizations; and the commercial private sector, the Emergency Plan provided \$482 million to support ART for approximately 401,000 AIDS patients and \$121 million to care for 1.7 million PLWHA and 1.2 million OVCs in fifteen focus countries through September 30, 2005.

There is a growing body of literature that indicates that nutritional support is a vital part of a comprehensive response to HIV/AIDS. Reports from the field underscore the importance of integrating food and nutrition support in HIV/AIDS programming, as well as incorporating HIV/AIDS components in food assistance projects. The USG is the world's largest donor of food aid, and USAID and USDA have a great deal of experience and expertise in food aid programming. Last year, the USG allocated more than \$2.4 billion to international food assistance, including \$210 million to USDA's Food for Progress, \$90 million for McGovern Dole International Food for Education, \$76 million for Section 416(b), and \$2.05 billion to Food for Peace (including a special allocation of \$388,000,000 from the Bill Emerson Humanitarian Trust Emergency grain reserves for Sudan and other crises).⁴ FFP worked in six of the focus countries in FY 2005.

The challenge now is to marry the respective resources and technical expertise dedicated to HIV/AIDS and food assistance, including food security programs to address the needs of PLWHA and their families. This document presents a USG strategy to integrate food and

nutrition interventions and activities within HIV/AIDS care and treatment programs. It describes how PEPFAR is currently coordinating and will coordinate with other USG partners (USAID, USDA, HHS, and Peace Corps) and with UN agencies, private volunteer organizations and other international and local partners to achieve common goals.

The Evidence Base for Food and Nutrition for PLWHA

3.1 Introduction

Adequate nutrition, which is achieved through consumption of a balanced healthy diet, consisting of locally available foods and fortified food and/or micronutrient supplements when appropriate, is vital for the health and survival of all individuals regardless of HIV status. According to WHO, nutritional support is an integral part of a comprehensive response to HIV/AIDS, helping to maintain the immune system and sustain healthy levels of physical activity.⁵ There are well-established scientific links among poor nutrition, food insecurity, and HIV/AIDS. However, the evidence base for identifying effective programming approaches is still evolving.

Antiretroviral treatment (ART) is an essential component of care for PLWHA, and nutritional assessment and counseling should be an integral part of all HIV treatment programs. Improved attention to diet and nutrition may enhance ART acceptability and effectiveness and help ameliorate metabolic complications. Clearly, more research is needed on the interactions between malnutrition and ART. Nutritional counseling should be an essential component of all HIV care and treatment programs. However, additional efforts are needed to focus on appropriate strategies and program models for nutritional assessment, counseling, and management of PLWHA in resource-limited settings, including non-clinical settings

3.2 Nutrition and HIV/AIDS

HIV/AIDS and malnutrition are both highly prevalent in many parts of the world, especially in sub-Saharan Africa. Their effects are interrelated and exacerbate one another in a vicious cycle. Both HIV and malnutrition can

⁴ ⁵ Fiscal year 2005 funding levels for USDA food aid programs were \$406 million total (P.L. 480 Title I concessional sales (\$30 million), Food for Progress (\$210 million), McGovern Dole International Food for Education (\$90 million), Section 416(b) (\$76 million).

⁵ ⁶ World Health Organization. "Nutrient Requirements for people living with HIV/AIDS: Report of a Technical Consultation." WHO: 2003 Geneva, 13-15 May.

independently cause progressive damage to the immune system and increased susceptibility to infection, morbidity and mortality through opportunistic infections, fever, diarrhea, loss of appetite, nutrient malabsorption, and weight loss.⁶ HIV specifically affects nutritional status by increasing energy requirements, reducing food intake, and adversely affecting nutrient absorption and metabolism.⁷

The current WHO recommendations for the nutrient requirements of people living with HIV/AIDS call for increases in energy over the intake levels recommended for healthy non-HIV-infected individuals of the same age, sex, and level of physical activity:⁸

3.2a Energy:

- Both asymptomatic and symptomatic PLWHA have additional energy requirements:
- Energy requirements are likely to increase by 10% to maintain body weight and physical activity in asymptomatic HIV-infected adults and to maintain growth in asymptomatic children.
- During symptomatic HIV and subsequent AIDS, energy intake increases by an additional 20% to 30%.
- Energy intakes need to be increased by 50% to 100% over normal requirements in children experiencing weight loss.⁹

Low food intake combined with increased energy demands are the major factors in HIV-related weight loss and wasting. While there continue to be metabolic changes, once a patient is on ARVs, progressive wasting and consequent morbidity can often be largely reversed and nutritional requirements may revert to normal.¹⁰

3.2b Protein:

Currently, there is no evidence that protein intake above the normal requirement will improve protein status or increase lean muscle mass in PLWHA. Therefore, data are

insufficient to support an increased protein requirement associated with HIV infection.¹¹

3.2c Micronutrients:

The role of vitamins and minerals in health remains incontrovertible. There has been some promising preliminary research examining the benefits of supplemental micronutrients in PLWHA on birth outcomes and disease progression, but the evidence does not yet warrant an increase in vitamin or mineral intake above the current recommended daily allowances (RDAs) for non-infected adults and children. This intake is best met through a diverse diet, including fortified foods, if necessary. If the diet is inadequate, a multi-micronutrient supplement with a single RDA of essential vitamins and minerals should be considered.¹²

3.3 Nutrition and ART

ART is essential to save lives, and clearly nutritional support alone cannot substitute for ART. However, food and nutrition play an inextricable role in the bioavailability (i.e. absorption, digestion, metabolism, and transport) of drugs. Furthermore, there are metabolic complications associated with long-term ART use that have nutritional implications. Experience with these complications in the developed world indicates that these complications can be effectively managed. The interactions between nutrition and ARVs in chronically malnourished adults and children, however, are largely unknown, as well as the effects of traditional and “alternative” remedies and dietary supplements on the safety and efficacy of ARVs.¹³ Further research is needed in this area.

According to WHO, national health authorities should prepare for ART services by providing training to relevant personnel on assessment, counseling, and management of short- and long-term nutritional aspects of ART. Dietary and nutritional assessment is essential to clinical

6 7 Piwoz, Ellen et al (2004) “Nutrition and HIV/AIDS: Evidence, Gaps, and Priority Actions.” Support Analysis and Research in Africa (SARA) Project, USAID.

7 8 Executive summary of a scientific review, WHO, April 2005. UNAIDS.

8 9 See WHO 2003 and WHO 2005.

9 10 World Health Organization (2003) Nutrient requirements for people living with HIV/AIDS: Report of a technical consultation WHO, Geneva, 13-15 May.

10 11 Raiten DJ, Grinspoon S and S Arpadi (2005) “Nutritional considerations in the use of ART in resource-limited settings.” Report of the Consultation on Nutrition and HIV/AIDS in Africa: Evidence, lessons and recommendations for action Durban, South Africa 10–13 April 2005, World Health Organization, Geneva; Grinspoon S, Mulligan K. “Weight Loss and Wasting in Patients Infected with Human Immunodeficiency Virus.” *Clinical Infectious Diseases*, 2003, 36:S69-S78; Polsky B, Kotle, D, Steinhart C. “HIV-associated Wasting in the HAART Era: Guidelines for Assessment, Diagnosis, and Treatment.” *AIDS Patient Care and STDs*, 2001, 15: 411-423; Batterham MJ, Garsia R, Greenop P. “Prevalence and Predictors of HIV-associated Weight Loss in the Era of Highly Active Antiretroviral Therapy.” *International Journal of STDs and AIDS*, 2002, 13:744-747.

11 Hsu JWC, Pencharz PB, Macallan D, and A Tomkins (2005) “Macronutrients and HIV/AIDS: A Review of Current Evidence.” Consultation on Nutrition and HIV/AIDS in Africa: Evidence, lessons and recommendations for action. Durban, South Africa 10–13 April 2005. World Health Organization, Geneva.

12 Friis, Henrik. 2005. “Micronutrients and HIV Infection: A Review of Current Evidence.” Consultation on Nutrition and HIV/AIDS in Africa: Evidence, lessons and recommendations for action. Durban, South Africa 10–13 April; Irlam JH, Visser ME, Rollins N, Siegfried N (2005) “Micronutrient Supplementation in Children and Adults with HIV Infection (Review).” *The Cochrane Library* Issue 4; Wiysonge CS, Shey MS, Sterne JAC, Brocklehurst P. (2005) “Vitamin A Supplementation for Reducing the Risk of Mother-to-Child Transmission of HIV Infection (Review).” *The Cochrane Library* Issue 4.

13 WHO. “Nutritional Considerations in the Use of ART in Resource-limited Settings.” Consultation on Nutrition and HIV/AIDS in Africa: Evidence, lessons and recommendations for action Durban, South Africa 10–13 April 2005, Daniel J. Raiten, Steven Grinspoon and Stephen Arpadi Department of Nutrition for Health and Development, World Health Organization, 2005.

management of HIV/AIDS both before and during ART. The sophistication of assessment depends on the realities of the clinical care setting, but should include, at a minimum:

- Basic anthropometry (e.g. height, weight, MUAC, skin-fold measurements);
- Dietary assessment (e.g. food frequency to assess normal dietary patterns and periods of food shortage);
- Use of dietary supplements, including use of herbal and botanical therapies. Food and/or micronutrient supplementation programs (specific nutrients of concern include, but are not limited to, vitamins A, B₆, B₁₂, and D; folate; selenium; and zinc)¹⁴; and
- Hemoglobin levels.

Ideally, other aspects to include in client assessment are:

- Psychosocial and environmental variables;
- Food preparation limitations;
- Ethnic and cultural food preferences and practices; and
- Physical activity.

Although ART reduces many of the contributing factors that cause HIV-related weight loss, wasting continues to be a factor in determining the success of ART. Currently, body mass index (BMI) may be the “best predictor” of mortality in PLWHA.¹⁵ Thus, BMI and nutritional issues also need to be monitored once a patient is on treatment.¹⁶

Responsiveness to nutritional interventions in PLWHA depends on viral load, stage of disease, concurrent treatment, nutritional status, and presence or absence of opportunistic infections (OIs). However, there are few data on the direct effect of dietary intake on these variables in HIV-positive people, particularly in developing countries. Some studies on specific nutrients and combination of nutrients suggest that disease progression, nutritional status, well-being and survival can be improved, but these studies have not resulted in specific recommendations for dietary modification beyond the recommendation for increased energy intake.¹⁷

3.4 Food Security and HIV/AIDS

Food is often cited by people living with and affected

14 Cooley. J Physicians Assoc AIDS Care. 1995; 2:24-29

15 van der Sande et al, 2004. JAIDS 37: 1288-1294.

16 Tang et al., 2005, JAIDS 40: 70-76.

17 Fawzi WW, Msamanga GI, Spiegelman D et al. (2004) “Randomized Trial of Multivitamin Supplements and HIV Disease Progression and Mortality” *New England Journal of Medicine* 351:23-32.

by HIV/AIDS as their greatest and most urgent need. Even though there are increasing numbers of interventions to address food insecurity in high HIV/AIDS prevalence settings, there is little empirical evidence of the effectiveness of such programs in improving nutrition and health outcomes or sustainable access to and utilization of food by targeted populations. When organizations have conducted interventions to improve food security in HIV/AIDS-endemic areas, the projects have tended to be isolated and small-scale and the results are not generalizable.

Although the evidence base is somewhat limited, food aid interventions can have a positive impact on beneficiaries’ lives by reducing their dependency on dangerous and livelihood-eroding coping strategies and by improving diet diversity and quality, as well as household food security. Food aid can provide a short-term safety net and a source of energy to beneficiaries that help them to remain productive or return to productivity.¹⁸ However, food aid interventions must include an exit strategy and should be linked with longer-term food security initiatives, such as income generation, in order to reduce dependency and foster sustainability.¹⁹ Furthermore, they must be carefully planned, targeted, and monitored, and must be accompanied by nutrition counseling in order to maximize safety and effectiveness and avoid creation of stigma.

3.5 Food and ART

Food and medications can have complicated effects on one another. Food can affect medication absorption, metabolism, distribution, and excretion. Medications can affect nutrient absorption, metabolism, distribution, and excretion. Furthermore, medication side effects can negatively affect food consumption and nutrient absorption.²⁰ For example, ARV side effects like nausea and loss of appetite may reduce food consumption, and side effects such as diarrhea and vomiting may increase nutrient losses.²¹

The combination of medicine and certain foods/dietary supplements (traditional medicines/herbals/botanicals) can interfere with drug metabolism, thus affecting both

18 Caldwell, R. 2005. “Food Aid and Chronic Illness: Insights from the Community and Household Surveillance Surveys.

19 Greenaway, K. and K. Greeblott (C-SAFE) and C. Hagens (TANGO International). “Targeted Food Assistance in the Context of HIV/AIDS.” Better Practices in C-SAFE Targeted Food Programming in Malawi, Zambia, and Zimbabwe.” Accessed 02/27/06 from: <http://www.c-safe.org/downloads/TFAFinal.pdf>.

20 Raiten et al.

21 Pronsky, Z., S.A. Meyer and C. Fields-Gardner. 2001. HIV Medications Food Interactions. Second Edition. Birchrunville, PA.

safety and efficacy. Different drugs have different food interactions, so clinicians and caregivers of PLWHA taking multiple drugs need to consider the potential for interactions and requirements of each drug. A failure to account for potential ARV-food interactions can result in adverse outcomes, including non-adherence.²²

3.6 Pregnant and Lactating Women

At present, there are no specific data on the impact of HIV/AIDS and related conditions on nutrient needs during pregnancy and lactation beyond established requirements for non-infected pregnant and lactating women. Thus, recommended intake of energy, protein and micronutrients is currently the same for HIV-infected and non-infected pregnant and lactating women.²³

3.7 Infants and Young Children

Infants born to HIV-positive mothers are at a substantially higher risk of low birth weight, early malnutrition, and mortality in the first two years of life, than children born to mothers without HIV, and the risks are greatest for infants of mothers with more advanced disease.²⁴ Providing nutritional care is essential to minimize HIV transmission in the postnatal period, while at the same time maximizing overall child survival. Critical interventions for HIV-exposed infants include nutritional assessment, infant feeding, counseling and support, periodic vitamin A supplementation, provision of suitable replacement foods as appropriate, and regular growth monitoring.

Transmission of HIV through breastfeeding has been well documented. Where breastfeeding is common and prolonged, transmission through breast milk may account for up to half of the HIV infections in infants and young children. The overall risk of mother-to-child HIV transmission (MTCT) in non-breastfeeding populations is 15-25% (without interventions to reduce transmission) and in breastfeeding populations is 20-45%. Available ARV prophylaxis interventions can substantially reduce MTCT during pregnancy, labor, and delivery but, so far,

significant reduction of postnatal MTCT has been more difficult to achieve.

The Global Strategy for Infant and Young Child Feeding, adopted by WHO and UNICEF, states that the optimal feeding pattern for overall child survival is exclusive breastfeeding for the first 6 months and continued breastfeeding for up to 2 years and beyond, with complementary feeding from age 6 months. To reduce the risk of HIV transmission, HIV-positive mothers are advised to avoid breastfeeding and use replacement feeding, when it is *acceptable, feasible, affordable, sustainable, and safe* to do so. These criteria are known collectively by the acronym AFASS. Otherwise, exclusive breastfeeding for the first months of life is recommended, followed by early breastfeeding cessation as soon as feasible, when AFASS conditions for safe replacement feeding can be met.

If mothers cannot access suitable weaning foods, or prepare and store them hygienically, early breast feeding cessation increases the risk of malnutrition and mortality in their infants and young children. Early mixed feeding (breast milk and other foods, including formula or animal milk) is associated with a significantly higher risk of MTCT, as well as higher risks of diarrhea, other infectious diseases, and mortality, compared to exclusive breastfeeding.²⁵

Thus, the preferred infant feeding options for HIV-positive mothers are complete replacement feeding from birth with a commercial infant formula, if it can be provided under AFASS conditions, or exclusive breastfeeding during the first months of life with early cessation when it becomes AFASS. However, because non-breastfed or early weaned infants are at a high risk of diarrheal disease and mortality, programs should monitor these children closely. In addition, they should assure that these infants are provided with a complete package of basic child survival interventions, including full immunizations, vitamin A supplementation, oral rehydration therapy and zinc supplementation for treatment of diarrhea, and protection, referral, and treatment for other infections such as respiratory infections and malaria. Health system

22 Castleman, Tony, Eleonore Seumo-Fosso, and Bruce Cogill. 2003 "Food and Nutrition Implications of Antiretroviral Therapy in Resource Limited Settings." Washington, D.C.: Food and Nutrition Technical Assistance Project, Academy for Educational Development.

23 Saadeh R.J., Henderson P. and C. Vallas (2005) "Infant feeding and HIV transmission." Consultation on Nutrition and HIV/AIDS in Africa: Evidence, lessons and recommendations for action Durban, South Africa 10–13 April 2005 World Health Organization, Geneva; WHO. "Nutrient Requirements for People Living with HIV/AIDS: Report of a Technical Consultation." World Health Organization, Geneva, 13–15 May 2003.

24 Kuhn L, Kasonde P, Sinkala M, Kankasa C, Semrau K, Scott N, Tsai W, Vermund S, Aldrovandi G, Thea D. "Does Severity of HIV Disease in HIV-Infected Mothers Affect Mortality and Morbidity among their Uninfected Infants?" *Clinical Infectious Disease*. 41: 1654-1661, December 2005.

25 Iiff, P.J., Piwoz, E.G., Tavengwa, N.V., Zunguza, C.D., Marinda, E.T., Nathoo, K.J., Moulton, L.H., Ward, B.J., the ZVITAMBO study group, and J.H. Humphrey. "Early Exclusive Breastfeeding Reduces HIV-transmission and Increases HIV-free Survival." *AIDS* 2005, 19: 699-708; Cout-soudis, A., Kubendran P. Kuhn, L., Spooner, E.; Tsai, W-Y., Coovadia, H.M., for the South African Vitamin A Study Group for the South African Vitamin A study group. "Method of Feeding and Transmission of HIV-1 from Mothers to Children by 15 months of age: Prospective Cohort Study from Durban, South Africa." *AIDS*, 2001, 15:379-387.

capacity for managing severe malnutrition should also be assured.

HIV-positive infants are at increased risk of low birth weight and early growth faltering.²⁶ Frequent untreated infections, nutrient malabsorption, and other metabolic complications of HIV place these children at extremely high risk of severe malnutrition. Early detection and initiation of therapeutic feeding increases the likelihood that HIV-infected children will recover from severe acute malnutrition.²⁷ However, failure to respond to nutritional therapy is an indication that ART should be initiated.²⁸

Successful outcomes for these children are highly dependent on a strong counseling program and support system for their mothers. Counseling for HIV-positive women on infant feeding should consider their personal circumstances, potential risk of stigma, and their disease progression. Early weaning also places considerable stress on infants and on mothers who need information to identify appropriate food and appropriate preparation. Mothers should also have access to follow-up care and support, including care and treatment of HIV/AIDS, family planning and nutritional support. Finally, interventions are needed within the community to increase the acceptability of feeding practices, which are different from cultural norms.²⁹

3.8 Evidence Gaps

There are a number of areas pertaining to the interactions among food, nutrition, and HIV/AIDS where information is lacking or incomplete. There are many relevant studies currently underway, and in some areas, additional research is needed. One of the major knowledge gaps is how to operationalize effective programming in low-income countries with the host of human resource, infrastructure, and systems strengthening needs that they face, and how to bring these programs to scale. PEPFAR continues to seek models that produce quality results with lower transaction costs. With respect to nutrition, more evidence is needed about: the relationship between malnutrition or nutritional interventions and HIV progression; the impact of therapeutic feeding on drug adherence; the effects of

nutritional intervention on drug efficacy; and interactions between alternative nutritional or herbal therapies and ARVs. There are also numerous questions surrounding food security, such as how to transition clients from food aid into food security and livelihood assistance programs, and how food and nutrition interventions should be adapted (in terms of ration size or composition) in order to better serve HIV-affected and HIV-infected clients.

Current USG-Funded Programs and Services

This strategy draws upon the comparative advantages of the USG agencies, UN agencies, private voluntary organizations, the private sector, and other multilateral and bilateral partners. A central precept of this strategy is the concept of the “wrap around.” This approach requires joint planning and programming across USG agencies, at the country and central level, to bring together resources in a focused manner to the individual and/or community at need. Emergency Plan resources are targeted to individuals most directly in need of nutritional counseling and support as part of an HIV/AIDS care and treatment program. Working in food-insecure environments, in addition to programs that address the nutritional needs of OVCs, PEPFAR focuses on clinical needs of severely malnourished PLWHA that require clinical interventions, not solving chronic problems of food insecurity for individuals, families, and communities. Resources from other agencies with a comparative advantage in broader food security issues are targeted or “wrapped around” Emergency Plan programs to help mitigate the full impact of HIV/AIDS on individuals, families and communities. These programs include those funded by the USG, the Global Fund for AIDS, TB and Malaria, UN agencies (WFP, WHO, UNICEF, FAO), foundations, and other international partners. Specific examples of wrap-around interventions include: provision of food to HIV-infected persons without a clinical need for food and the HIV-affected families, and communities, enhancing food security and livelihood assistance (e.g. gardening and income-generating activities); strengthening health and nutrition services (e.g. routine vitamin A supplementation and de-worming programs); and commercial fortification of staple foods. In addition, wrap-around programs with the education sector, through school feeding and HIV/AIDS education, and with other health programs, in particular child survival programs, also contribute to this strategy.

²⁶ Arpadi, Stephen M. “Growth Failure in HIV-infected Children.” World Health Organization, 2005.

²⁷ Sandige H, Ndekha MJ, Briend A et al. “Locally produced and imported ready-to-use food in the home-based treatment of malnourished Malawian children.” *Journal of Pediatric Gastroenterology Nutrition*. 39(2): 141-146, August 2004. ; Bahwere et al.,

²⁸ WHO, 2006

²⁹ Saadeh, Randa, Peggy Henderson and Cota Vallenat. 2005. “Infant feeding and HIV transmission.” Consultation on Nutrition and HIV/AIDS in Africa: Evidence, lessons and recommendations for action Durban, South Africa, 10–13 April.

Below is a brief summary of the focus and types of relevant programs currently undertaken by different agencies.

4.1 Coordination and Cooperation with USG Partners

4.1.a Office of the U.S. Global AIDS Coordinator (OGAC)

The Emergency Plan coordinates all of the USG agencies working internationally on HIV/AIDS. Food and nutrition activities are integrated within four program areas: Palliative Care, Treatment, OVCs, and PMTCT. OGAC plays a key role in developing and coordinating policy. Relevant to food and nutrition in particular is the Preventive Care Package Guidance. In the area of food and nutrition, OGAC chairs the inter-agency work group on food and nutrition, leading the effort to expand the existing partner base and to “wrap around” other agriculture, food security and nutrition activities, particularly those of the USDA and USAID, as well as the WFP and other UN agencies.

4.1.b U.S. Agency for International Development (USAID)

USAID is a major implementing partner of the Emergency Plan, carrying out HIV/AIDS prevention, care and treatment programs in nearly 100 countries around the world. The Bureau for Global Health (GH) supports health programs and advances research in areas that include nutrition, maternal and child health, health systems, and HIV/AIDS. The Office of Food for Peace (FFP) provides support to mitigate the impact of HIV/AIDS on food security in its Title II food aid and security programs. These programs focus on nutritional care, support and counseling for HIV/AIDS-affected households; strengthening food security and livelihoods of food insecure households and communities affected by HIV/AIDS; and identifying new or improved foods for therapeutic care of HIV-infected individuals. FFP programs are implemented by private voluntary organizations (PVOs). The Bureau for Economic Growth, Agriculture and Trade (EGAT) supports projects, including income-generating activities, that enhance availability of and access to nutritious foods for PLHWA and their families. The Global Development Alliance (GDA) Office forges public-private alliances, such as local production of ready-to-use therapeutic food (RUTF) that can be made with local foods and has been shown to be effective in treating severely malnourished HIV-positive children. Studies are underway to evaluate its effectiveness for malnourished HIV-positive adults.

4.1.c U.S. Department of Agriculture (USDA)

USDA provides leadership related to food, agriculture, and natural resources, and offers technical assistance and consultative support in development and implementation of feeding programs serving PLWHA and OVCSs. Within USDA, the Foreign Agricultural Service (FAS) manages the food aid programs and activities that strengthen agricultural market systems within developing countries. USDA food aid programs under FAS—including Food for Progress, Food for Education, and Section 416(b) — are established in nine countries (five of them PEPFAR focus countries), serving approximately 295,000 HIV/AIDS-affected individuals. These activities include direct feeding to AIDS patients, direct distribution of commodities to HIV/AIDS-affected households, HIV/AIDS awareness and prevention programs, and micro-credit loans to HIV/AIDS-affected persons. In addition, USDA provides commodities for feeding purposes and monetization efforts as part of various programs to assist countries in obtaining and maintaining nutrition security as well as providing a means to achieving economic sufficiency by creating new markets of agricultural products. Furthermore, USDA's Food and Nutrition Service (FNS) can provide technical expertise and consultation in the development, start-up, and continued assessment phases of overseas models for PEPFAR nutrition programs. Interagency agreements between government agencies can be expanded to fund targeted technical assistance from USDA technical agencies and the university community.

4.1.d U.S. Department of Health and Human Services (HHS)

HHS is the USG's principal agency for protecting the health of all Americans and providing essential human services. Under the Emergency Plan, HHS implements prevention, care and treatment programs in developing countries and conducts HIV/AIDS research. HHS field staff also work with country coordinating mechanisms of the Global Fund to improve implementation of Global Fund grants and program and their coordination with USG programs. The National Institute of Health (NIH) is the world's premier medical research organization, supporting over 38,000 research projects nationwide on diseases including HIV/AIDS. NIH plays an integral role in providing technical support to WHO efforts to develop the evidence base and guidance for prevention, care, and treatment of PLWHA. Working with states and other partners, the Centers for Disease Control and Prevention (CDC) provides a system of health surveillance to monitor and prevent disease outbreaks, implement disease prevention

strategies, and maintain national health statistics. CDC has highly trained physicians, epidemiologists, public health advisors, behavioral scientists, and laboratory scientists working throughout the world as part of USG teams implementing the Emergency Plan. With technical assistance from regional and headquarters offices, CDC assists with surveillance, laboratory capacity building, training, monitoring, evaluation, and implementation of HIV/AIDS prevention, treatment, and care programs through partnerships with host governments, ministries of health, non-governmental organizations, international organizations, U.S.-based universities, and the private sector to help implement the Emergency Plan. The Health Resources and Services Administration (HRSA) supports health care for uninsured people, people living with HIV/AIDS, and pregnant women, mothers and children. HRSA also trains health professionals and improves systems of care in rural communities. HRSA's HIV/AIDS Bureau (HAB) consolidates all U.S. domestic programs funded under the Ryan White Comprehensive AIDS Resources Emergency (CARE) Act. These domestic programs have developed technical expertise and program models which could potentially be applied to countries in which PEPFAR operates.

4.1.e Peace Corps

The Peace Corps is a volunteer organization that has been conducting HIV/AIDS prevention and care activities since the mid-1980s. Peace Corps volunteers work with host country counterparts to build capacity and transfer skills at the grassroots level. Because Peace Corps volunteers live in the communities in which they work, speak the local language and understand the cultural context, they have a unique opportunity to effectively integrate cultural concepts and community participation into their work. Peace Corps takes an integrated, cross-sector approach to addressing HIV and AIDS as a development issue, rather than a just a health issue. This approach has permitted volunteers and their communities to creatively respond to the pandemic, which includes supporting activities and projects in the area of agriculture, food security and nutrition.

4.2 Coordination and Cooperation with International Partners

4.2.a UN Agencies

UNAIDS: UNAIDS, the Joint United Nations Programme on HIV/AIDS, brings together the efforts and resources of ten UN system organizations to the global AIDS response. UNAIDS is responsible for developing,

disseminating and monitoring the implementation of policies around HIV.

World Health Organization (WHO): WHO is the United Nations' specialized agency for health. Its Nutrition for Health and Development Office is tasked with providing the international community with science-based norms, standards, recommendations and technical guidance on nutrition and HIV/AIDS. The Child and Adolescent Health and HIV/AIDS Departments issue guidance on issues of infant feeding and PMTCT. The World Health Assembly (WHA57.14) has called on Member States to pursue policies that promote the integration of nutrition into a comprehensive response to HIV/AIDS. The main findings of a WHO scientific review were submitted to a Technical Consultation on Nutrition and HIV/AIDS in Africa (Durban, 10-13 April 2005). The review concluded that nutrition is a critical component of a comprehensive response to HIV/AIDS, and noted that countries need more guidance on nutrition interventions, targeting, monitoring and evaluation.

World Food Program (WFP): Currently, WFP has HIV/AIDS programs in 41 countries in Africa, Asia, and Central and Latin America. WFP's strategy focuses on food insecurity and malnutrition brought on by HIV/AIDS, not on the disease itself. WFP is in the process of mainstreaming HIV/AIDS considerations into its core programs, such as emergency relief, food for assets, school feeding, and mother and child health interventions, to address the specific nature of vulnerability to food insecurity resulting from the HIV pandemic. The vast majority of WFP's 'HIV/AIDS' activities still fall under these core programming categories. However, a rapidly growing number of WFP country offices are piloting specific activities to provide food and nutritional support (and other inputs), as part of comprehensive care and support related to HIV/AIDS. For these programs, WFP works in close partnership with governments, NGOs, and other UN agencies. These activities fall into four main categories: PMTCT and MTCT Plus (in Ethiopia, Rwanda, Mozambique, Uganda, Zambia and others), Home-based Care (HBC) (in Mozambique, Tanzania, Uganda, Kenya, and others), ART (in Cote d'Ivoire, Mozambique, Zambia, Kenya, Uganda, Rwanda and others), and TB (in Haiti, Uganda, Zambia, and others). WFP country programs reported that they are implementing HIV activities in 26 countries in Africa, Asia, Central and South America. In the focus countries they reported directly distributing over 4500 metric tons of food to over 368,000 people with

PMTCT, ART, HBC and TB, representing approximately \$2.9 million dollars of WFP resources. WFP defines its beneficiaries as targeted people provided with WFP food. Thus, these figures include both the person undergoing treatment as well as household members if a household ration is provided.

Food and Agricultural Organization (FAO): FAO is working to raise awareness and to secure commitments to systematically incorporate HIV/AIDS objectives into existing food security policies and programs, and nutrition and food security considerations into HIV/AIDS policies and programs. FAO supports programs that enhance people's access to adequate, nutritious diets, including home and community gardening projects, food assistance, nutrition education and communication, and local training. For example, FAO nutrition and household food security projects in Mozambique and Zambia are using a mix of interventions, such as food aid, labor- and time-saving technologies, and microfinance, to help support food production and diversification among HIV/AIDS-affected households. Furthermore, FAO is working with the WFP and other UN agencies, non-governmental organizations and local institutions, to found the Junior Farmer Field and Life Schools for children and young people in response to the growing numbers of AIDS orphans. The objective of the schools is to empower orphans through knowledge and self-esteem and to give them essential tools to support their long-term food security. In addition, FAO has produced a range of materials, including a recent guide, "Incorporating HIV/AIDS Considerations into Food Security and Livelihood Projects." FAO and the WHO also have produced "Living Well with HIV/AIDS: A Manual on Nutritional Care and Support for People Living with HIV/AIDS."

UNICEF: With more than 15 million children orphaned by AIDS and one-third of the global population living with HIV/AIDS under the age of 25, UNICEF, the United Nations Children's Fund, recognizes the significant threat of HIV/AIDS on the well-being of children. To ensure that children affected by HIV/AIDS receive the support and attention they require and deserve, UNICEF launched a global campaign in October 2005 to call the world to action. UNICEF's programs focus on four priorities: prevent HIV infections among young people, prevent parent-to-child transmission of HIV, provide pediatric treatment, and protect and support children affected by HIV/AIDS. UNICEF is also one of the UNAIDS co-sponsors and was part of a process that identified broad

areas of support for HIV/AIDS. UNICEF, working with other UN partners, agreed to lead in the areas of technical assistance in care and support for people living with HIV, orphans and vulnerable children and affected households and technical support on dietary and nutritional support.

4.2.b Other multilateral organizations

World Bank: Addressing malnutrition and micronutrient deficiencies is central to the World Bank's strategy to support country efforts to reduce poverty and achieve the Millennium Development Goals. The Bank is working on a synopsis of guidelines for HIV/AIDS, Nutrition, Food and Food Security. In January 2006, representatives from the World Bank participated in a trilateral meeting with representatives from the Emergency Plan and the Global Fund to discuss program implementation and ways of improving coordination. Furthermore, the World Bank supports agricultural development and nutrition activities.

The Global Fund to Fight AIDS, Tuberculosis and Malaria: As a financing mechanism for country-driven programs, the Global Fund supports HIV/AIDS prevention, care and treatment interventions conceived and implemented by local entities. The Global Fund model also seeks to coordinate its efforts through other multilateral and bilateral organizations involved in health and development. In many cases, these partners participate in proposal development through local Country Coordinating Mechanisms, and sometimes also provide technical assistance during implementation of programs. The Global Fund seeks to complement financing from other donors and to use its own grants to catalyze additional investments by donors and by recipients themselves. With respect to food and nutrition, the Global Fund is working with WHO to develop guidelines to assist countries in incorporating nutrition into funding proposals (these guidelines are forthcoming). The Global Fund's approach is to seek proposals that incorporate nutrition into an overall plan to address HIV/AIDS. At the country level, PEPFAR coordinates its bilateral programs with those of the Global Fund under the Three Ones principles for cooperation, with the USG providing input during drafting of grant proposals and coordinating implementation.

4.2.c Coordination and Cooperation with the Private Voluntary Organizations (PVOs)

Many of the food- and nutrition-related HIV/AIDS interventions funded through USG resources are

implemented by Private Voluntary Organizations (PVOs). The PVO community is a strong partner of the Emergency Plan, responsible in many settings for delivery of HIV/AIDS prevention, care and treatment programs. Many of these same PVOs also serve as the conduit for Title II and WFP food aid to acute and chronically food insecure families, linking food assistance to basic health care, child survival programming, nutritional support and food security and livelihood assistance programs – critical wrap-around programs for HIV/AIDS.

The Emergency Plan will continue to work closely with the PVO community to identify and support best practices, and effective program models to address the nutritional needs of PLWHA and their families.

4.2.d Coordination and Cooperation with the Private Sector

The Emergency Plan also recognizes the opportunity to collaborate with others from the private sector, particularly the food industry, both in the U.S. and host countries, in order to leverage resources that will help address the food and nutritional needs of PLWHA receiving care and treatment. Since this strategy targets malnourished PLWHA receiving or eligible for ART, HIV-infected pregnant and lactating women, and OVCs, *producers* of fortified and therapeutic foods and beverages that are suitable for these populations are critical private sector partners. Examples of such partners include Nutriset (producers of PlumpyNut) and InstaProducts (Kenyan producer of therapeutic foods).

There must be appropriate *incentives* for the private sector to participate in this initiative. These partnerships will highlight the food and nutritional requirements of PLWHA by; facilitating a coordinated approach among the various players; providing technical assistance to the private sector; and linking the private sector, USG, host country governments and WHO in order to develop and distribute the most effective, appropriate products to the market. Maximizing unique core competencies of companies helps them to better respond to the realities of market demand, and provides opportunity for appropriate product development and corporate social responsibility.

The key attributes of PEPFAR public-private partnerships are that programs are scalable, replicable, and sustainable, and that they contribute to achieving the Emergency Plan's 2-7-10 goals. Collaboration and the compilation of best practices can help to develop projects which will result in private sector returns on ventures and promote

continued investment in the future.

Strategies and Priorities

5.1 Introduction

The USG approach to HIV/AIDS, food, and nutrition is comprehensive, interdisciplinary, and strategic, drawing on the comparative advantages of the respective partner agencies. The USG requires the use of non-HIV funding mechanisms (e.g. USAID Title II, USDA, and WFP) for wide-scale food support and associated efforts intended to relieve food insecurity and reduce poverty within affected populations. The strategy is dependant upon joint planning across these agencies at the headquarters and national levels to ensure that the priority food and nutrition needs of the most affected and vulnerable populations are addressed. Emergency Plan funds may only be used to purchase food in limited circumstances that are specifically targeted at HIV-infected people with a clinical need for food, or, in the case of OVCs, affected by HIV/AIDS. PEPFAR country teams are encouraged to coordinate with national governments, UN partners and the private sector for the planning and implementation of this strategy.

In this context, activities for the clinical needs of PLWHA that can be supported under the Emergency Plan include:

- Development and/or adaptation of food and nutrition policies and guidelines;
- Nutritional assessment and counseling, including hygiene and sanitation education, maternal nutrition, and safe infant and young child feeding related to PMTCT;
- Under conditions where there is evidence of clinical malnutrition for PLWHA, therapeutic and supplementary feeding that is well-targeted and adheres to WHO recommendations for entry and exit criteria³⁰;
- Micronutrient supplementation, where adequate intake of micronutrients is not met through a diverse diet, including fortified foods;
- Replacement (weaning) feeding and support, within the context of WHO and national PMTCT & infant feeding guidelines; and
- Linking Emergency Plan programs to food assistance, food security, and safety-net programs.

30 Management of severe malnutrition: A manual for physicians and other senior health workers. WHO, Geneva 1999

The Emergency Plan allows for provision of food and nutrition support under these conditions:

- Food and nutritional support must directly contribute to meeting the prevention, treatment and care goals stated in the U.S. Five-Year Global HIV/AIDS Strategy;
- Nutritional interventions must be based on the scientifically established WHO assessment criteria and guidelines for nutritional care;
- Emergency Plan programs must first attempt to access food resources for therapeutic and supplementary feeding from other sources;
- Emergency Plan food support to clinically malnourished patients should be provided within the context of clear eligibility and exit anthropometric criteria and plans to transition to more sustainable food security for recipients. There is some evidence and beginning practice with some organizations that the limit for this support is six months; and,
- Resources should be leveraged to provide support to PLWHA and their families to address their broader health, food security and livelihood needs.

5.2 USG Target Groups

The USG recognizes that food insecurity and malnutrition are endemic in many of the places affected by HIV/AIDS. Given the costs of food and feeding programs, in order to use our resources most effectively, the Emergency Plan prioritizes the following clients:

- OVCs, particularly children under the age of two, born to HIV-positive mothers that are identified through and linked to PMTCT, community outreach, or other OVC programs;³¹
- HIV-positive pregnant and lactating women (identified through PMTCT or MCH programs);
- PLWHA patients on ART or eligible for ART with clinical evidence of malnutrition; and³²
- PLWHA in care programs with clinical signs of malnutrition

Even with this focus, this is potentially an extremely large

31 The Emergency Plan definition of "Orphans and vulnerable children" is: Children, 0-17 years old, who are either orphaned or vulnerable due to HIV/AIDS. An orphan is a child who has lost one or both parents due to HIV/AIDS. A child is vulnerable due to HIV/AIDS because of one of the following factors: (1) has HIV/AIDS; (2) lives with missing or inadequate adult support due to death, abandonment, economic distress or chronic illness; (3) lives outside family care.

32 Malnutrition refers to either not enough or too much food, the wrong types of food, and the body's response to a wide range of infections that result in malabsorption of nutrients or the inability to use nutrients properly to maintain health. Clinically, malnutrition is characterized by inadequate or excess intake of protein, energy, and micronutrients such as vitamins, and the frequent infections and disorders that result (WHO).

target group that may draw resources away from other critical prevention, care and treatment interventions. Thus, even with these target populations, seeking resources from other sources should be the first approach. In addition, other USG agencies are anticipated to take the lead in addressing the food and nutrition needs of:

- Malnourished affected family members and caregivers of PLWHA; and,
- Malnourished HIV-affected communities

5.3 Types of Food and Nutrition Interventions

Interventions to address the food and nutrition needs of PLWHA work at multiple levels and involve a variety of partners. As guidance in designing appropriate nutrition interventions, specific objectives include: improving the quantity and quality of diets among PLWHA; building or replenishing body stores of essential nutrients; preventing or stabilizing weight loss; preserving and gaining muscle mass; preventing diarrhea and other infections that impact on nutritional status; speeding recuperation from HIV-related infections; and preparing for and managing AIDS-related symptoms that affect food consumption and dietary intake. Furthermore, the intervention should be conducted in a manner that does not stigmatize the beneficiary.

The USG supports activities at: (1) the policy and planning level and (2) the patient care and program level.

5.3.a Policies, Guidelines and Planning

A key objective and focus of national, district, and community policies, guidelines and planning is the integration of food and nutrition interventions into HIV/AIDS services. The Emergency Plan supports the development of national policies and guidelines that provide a framework for linking food and nutrition activities within the care and support of people infected and affected by HIV/AIDS, including OVCs and their caretakers. This includes policy work to support linkages with other sources of food and sustainable approaches to improve food access in the targeted population. Training for health care personnel on implementation of policy and technical guidelines is also supported. The USG will fund *one* set of training curricula, nutrition and dietary assessment tools, and other intervention materials to be used across a given country.

USG country teams across the food sector, including PEPFAR, are encouraged to work with their local government counterparts, as well as other international

Adoption of National Guidelines for HIV/AIDS & Nutrition, Rwanda and Malawi

In Rwanda, a Nutrition Technical Working Group--with technical and financial assistance from USAID, UNICEF, FAO and WFP-- helped develop national guidelines that incorporate the hitherto missing food and nutrition dimension into the package of care and treatment for people infected and affected by HIV/AIDS.

Malawi, where policy guidance and a coordinated, integrated strategy for tackling the problems of HIV/AIDS, nutrition and food insecurity were absent, the government consulted with technical experts, including USAID-supported RENEWAL staff and WHO and UNICEF staff, to develop a policy and strategy document, which was officially adopted in late 2005.

Other PEPFAR focus countries that have developed national guidelines for HIV/AIDS and nutrition include Botswana, Kenya, Namibia, South Africa, Tanzania, and Zambia. While Guyana and Haiti do not yet have national guidelines, regional guidelines exist for the Caribbean.

partners and PVOs, to ensure that appropriate nutrition policies are in place and that planning is underway for the implementation of food and nutrition-related HIV/AIDS interventions. Governments need to plan for such issues as: human resources (trained staff, salaries and benefits, and support costs); how they will bring in food aid, if necessary; and wrap-around programming with existing HIV/AIDS services. Planning should include different ministries, such as the Ministry of Health, Ministry of Agriculture, and Ministry of Finance. The critical factors are that planning is coordinated at different levels and that nutrition and food are mainstreamed within HIV/AIDS activities.

Policy guidance exists and operates at four levels: global, national, facility, and community. At the *global* level, UN agencies, such as WHO, develop and disseminate policy guidelines that set universally accepted standards. The “Three Ones” principles—namely, one agreed-upon HIV/AIDS action framework that provides the basis for coordinating the work of all partners; one national AIDS coordinating authority, with a broad based multi-sector mandate; and one agreed country-level monitoring and evaluation system—operate at the *national* level, and the Emergency Plan facilitates the efforts of host country governments to enact those principles. PEPFAR country teams and host country governments also work together to implement policy guidelines at the *clinic/facility* and *community* levels.

5.3.b Interventions for Patient Care

The Emergency Plan supports the following nutritional interventions for patient care: nutritional assessment, counseling and education; therapeutic and supplementary feeding; and PMTCT. Each type of intervention entails curriculum development (pre-service and in-service), training (e.g. nutritionists or community health workers to conduct nutritional assessments, and follow-up to ensure assessments are carried out correctly) and quality assurance measures (health worker performance standards, job aids, supervision, patient management practices, and patient record systems), and monitoring and evaluation (to determine the impact and assess best practices). These interventions, ideally, will be integrated into broader HIV/AIDS training and service delivery programs.

Although there are advocates for the use of food as an incentive to participate in testing and treatment programs, PEPFAR does not consider this to be an effective, strategic

use of its resources. Instead, food should be specifically targeted to malnourished PLWHA and OVCs as an adjunct to HIV/AIDS treatment and care programs.

Furthermore, the Emergency Plan does not support interventions such as social marketing of food products to the general population and fortification of staple foods consumed by the general population.

5.3.b.i Nutritional Assessment

Nutritional assessment is a central part of the strategy, particularly anthropometric and dietary assessments to support clinical management of HIV-positive individuals before and during ART and to target food and nutrition support for malnourished adults and children infected or affected by HIV/AIDS. There are two aspects of nutritional assessment:

- a) The guidelines and tools for conducting assessments and their adaptation within each country. These have been developed by WHO and the international community with OGAC, HHS and USAID support, and are being adapted within countries by governments, bilateral

agencies, PVOs, and other implementation partners.

- b) The actual conducting of assessments by service providers on the ground. Nutritional assessment occurs at the *facility* level, integrated with clinical management of PLWHA (by physicians and/or nurses, nutritionists, and trained staff), and at the *community* level through home-based care programs.

The Emergency Plan will help ensure that focus countries have access to nutritional assessment tools and equipment (such as scales for weighing), and that training and quality assurance monitoring are in place so that nutritional assessment is properly conducted.

5.3.b.ii *Counseling and Education*

Emergency Plan country teams are encouraged to support counseling and education in order to: support weight gain or maintenance; prevent and manage food- and water-

Nutritional Assessment and Counseling, Kenya and Uganda

In Kenya, nutritionists/dietitians are posted to comprehensive care clinics (CCCs) in provincial and district hospitals, where HIV/AIDS treatment and care are provided. Health officials have established systems whereby ART patients and other PLWHA receiving services meet with nutritionists for nutritional assessment and counseling. Patient weight records are maintained and used to support counseling and support. The Ministry of Health has recently adopted National Guidelines for Nutrition and HIV/AIDS and deployed an additional 50 nutritionists and dietitians to CCCs to ensure sufficient human capacity to address nutritional needs, and with PEPFAR support, hospital staff are receiving specialized counseling materials and training in nutrition and HIV/AIDS.

At the Mildmay Center in Kampala, Uganda, which provides an array of HIV/AIDS treatment and care services, a trained nutritionist on site performs nutritional assessments and conducts nutrition counseling for PLWHA. The nutritionist works in a separate room that allows patient privacy and coordinates with the center's medical doctors and psychosocial counselors to ensure patients receive integrated care.

borne illnesses; manage dietary complications related to HIV infection and anti-retroviral treatment; promote safe infant and young child feeding practices, including promotion of early and exclusive breast feeding for HIV-exposed infants in all situations where safe conditions cannot be guaranteed for replacement feeding to reduce MTCT, and protect the health and survival of OVCs. This approach includes support for training health care personnel to ensure incorporation of current technical best practice into counseling and service delivery.

Counseling and education can be undertaken by a wide range of community leaders and members, from a nurse in a clinic to an agriculture extension worker to a member of an association of PLWHA. In certain scenarios, a brief nutritional assessment with referral for clinic-based counseling and support may be the most feasible and appropriate intervention. In other situations, where strong community-based norms have been established, establishment of lay counseling programs may be an alternative (e.g. peer counseling programs, with an expert mentor available to provide technical assistance and assist with resolving complex problems).

It must be underscored that good nutrition also entails nutrition-related health interventions, such as safe water, hygiene, and de-worming. These are high-impact, cost-effective interventions that contribute to improved nutritional status. Thus, nutrition-related health education should be part of the counseling curriculum for PLWHA and their caretakers and linked to related services in Child Survival and MCH programs.

5.3.b.iii *Food and Nutrition Activities*

The best program models for integrating food and nutrition and HIV/AIDS interventions without overburdening already stretched clinic staff are isolated and have yet to be fully developed and implemented at scale. The strongest approaches will likely build on the concept of networking and integration, whereby a care provider refers a patient to receive short-term therapeutic or supplementary feeding based on nutritional assessment. Through this referral, the patient and family are linked to an association of PLWHA, community group, or social worker to provide further nutritional counseling, where appropriate and feasible, the food itself, and to address longer-term food security and livelihood assistance support.

(a) *Therapeutic and Supplementary Feeding*

Africare Nutritional Rehabilitation of Malnourished OVCs, Guinea

The PVO Africare is using an adaptation of the Positive Deviance-Hearth approach to rehabilitate severely malnourished children infected or affected by HIV/AIDS. In this model, “positive deviant caretakers,” whose household caring and feeding practices, despite poverty, result in well-nourished children work with trained volunteers to teach other caretakers how to sustain nutritional practices and adopt appropriate behaviors regarding prevention and care for HIV/AIDS-affected children. Furthermore, links are made to health services for de-worming, immunizations and micronutrient supplementation.¹

¹ A study by Kadio et al. (2005) demonstrated significant results in reducing malnutrition among children.

In general, the Emergency Plan prioritizes nutritional rehabilitation and support with appropriate therapeutic foods for severely malnourished members of the four priority target groups. Therapeutic foods include products such as PlumpyNut, an energy-dense, fortified peanut butter/milk powder-based paste (or other locally produced ready-to-use high nutritional density foods equivalent to F100 therapeutic milks), and therapeutic fortified milks, such as F100 and F75.

Supplementary feeding entails nutritional rehabilitation and support with appropriate supplementary foods for severely malnourished HIV-infected adults and children (including OVCs) prior to, and as an adjunct to, ART. Examples of products for supplementary feeding include fortified blended flours such as CSB, and vitamin A-fortified vegetable oil. In both cases exit criteria, based on WHO anthropometric criteria, must be established and applied.

In terms of effective program implementation models, the primary point of patient identification may occur within hospitals, clinics, and/or communities. The Emergency Plan’s primary point of interface is at health facilities (clinics and hospitals); other organizations have a comparative advantage operating in the community. Eligibility and exit criteria for programs should be based on WHO criteria.

USAID/FFP and WFP have comparative advantages in

the logistics of targeting, procurement, and delivery of therapeutic and supplementary feeding. However, there are opportunities to link clinical service and community/home-based care programs with the local food industry to provide supplementary food to malnourished PLWHA and OVCs. PEPFAR country teams should coordinate with other donors or USG-supported feeding programs so that PLWHA and OVCs receiving therapeutic food transition smoothly to supplementary feeding support, as appropriate, and to ensure that food insecure families and caregivers of PLWHA and communities affected by HIV/AIDS are linked with food assistance programs.

(b) Livelihood and Food Security Support

According to the USAID definition, “Food security exists when all people at all times have both physical and economic access to sufficient food to meet their dietary needs for a productive and healthy life.”³³ This definition focuses on three distinct but interrelated elements that are essential to achieving food security: food availability (sufficient quantities of food available for consumption); food access (adequate resources to obtain appropriate foods for a nutritious diet); and food utilization (proper biological use of food, requiring a diet providing sufficient energy and essential nutrients, potable water and adequate sanitation, as well as knowledge of food storage and processing techniques, basic principles of nutrition, and proper child care and illness management).

Food security interventions targeted at PLWHA and affected communities are supported primarily through USAID’s FFP and EGAT support. Limited Emergency

33 USAID Policy Determination Number 19, April 1992

USDA Peer Counseling, U.S.

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) has served as a pioneer in the development of peer counseling programs in the area of breastfeeding promotion, in which lay women who have breastfeeding experience complete a formal training program and then, under the supervision of an expert mentor, provide counseling and support to new mothers to help them to successfully breastfeed. There is potential for adapting these peer counseling training programs to other health promotion programs such as nutrition and health for PLWHA.

Plan support is available to facilitate access to other food resources that will be used for food assistance programs, such as therapeutic and supplementary feeding. Emergency Plan country teams are encouraged to link HIV/AIDS programs to food security and livelihood assistance projects, such as income-generating activities, labor-saving farming techniques, and Food for Progress. USDA, USAID, and Peace Corps have comparative advantages in the design and implementation of these types of programs.

Within the concept of comprehensive care strategies for OVCs, the Emergency Plan does support food and nutrition-related strategies for affected OVCs and their

Local Food Industry and HIV/AIDS, Kenya and Botswana

Insta Products, Ltd., a Kenyan food processing company, is producing three fortified, precooked blended flour products for distribution to adult ART and other AIDS patients, HIV-positive pregnant and lactating women, and infant and young OVCs through the government comprehensive care clinics providing HIV/AIDS treatment services. Patients who are determined to be malnourished by anthropometric assessment are eligible for food by prescription – a monthly ration of the appropriate Insta Product blended flour – for up to 6 months. Cost of the food is ~22 cents/d and most patients report weight recovery and significantly improved vigor with 3 months.

In Botswana, local food industry has developed a nutritious bean and sorghum food product that meets a single RDA of essential nutrients for children who are living with HIV/AIDS. All children undergo a comprehensive nutritional and biochemical assessment; caretakers are given nutrition counseling and a monthly ration of supplementary food for the family. In developing this porridge product, it is expected that there will be an increase in participation of farmers and the development of small and medium enterprises. The impact of this approach is currently under study.¹

1 Utilization of Bean Based Foods to Improve Motor Performance, Nutritional and Immune Status in HIV+ Children and Marama Bean Pilot Production and Processing Trials in Botswana (2005-2007). Funded in part by EGAT.

caregivers, such as support for development of gardens and nutritional counseling for dietary diversity.

(c) Support to Agriculture and Local Food Industry

Many of the people living in HIV-affected areas are subsistence farmers, and thus HIV/AIDS takes a large toll on the agriculture sector at the household, community, and national levels. While the majority of programs to address this will be funded by USAID FFP or EGAT, there are some opportunities to ensure that agriculture is “HIV-responsive,” particularly when integrating HIV prevention messages. Examples include:

- *Raising awareness and understanding about HIV/AIDS.* Working with groups associated with agricultural production and marketing, such as petty traders and retailers, ambulant traders, transporters, and owners of hotels; using market days and other occasions when people are gathered to educate them about HIV/AIDS.
- *Reducing risk of exposure to HIV infection.* Reducing the need to migrate by improving food and nutrition security through increased agricultural output, improved quality of produce, and more efficient

Improving Economic and Nutritional Status of OVCs and PLWHA, Kenya

In Kenya, the USAID agriculture-funded Nutribusiness Project aims to increase the economic status of poor rural women farmers, while improving the nutritional status of children and PLWHA. Blended flour porridge products are formulated using locally available nutritious vegetables and cereals grown by women, solar dried and milled. The products are then sold to rural and urban markets at a small profit. The project mobilizes women groups into nutrition cooperatives, collects local weaning recipes from the women, and jointly formulates a blend of flour from local nutrient-rich cereals and vegetables that can be reconstituted as a porridge for young children and has also been well accepted by malnourished adult PLWHA. The product formulae have undergone laboratory nutritional analysis and have been approved by the Kenya Bureau of Standards. Processing plants have been constructed in two districts and are solely operated and managed by the women groups. The University of Nairobi facilitated the development of business plans and commercialization of the products.

HAART 'n' Harvest Initiative (HHI), Western Kenya

The Academic Model for Prevention and Treatment of HIV/AIDS (AMPATH), a Kenyan/U.S. university partnership, provides comprehensive HIV/AIDS services through government clinics in western Kenya. HHI is an innovative system of small-scale, high-production farms that use locally available technology. All HIV-infected patients undergo nutritional assessment, and those found to be malnourished or food-insecure are given nutritional counseling and a “nutrition prescription.” Prescriptions are presented at the HHI farms or distribution points for supply of fresh, locally acceptable food calculated to meet the needs of the patient and their household. Additionally, patients and the surrounding community receive education on nutrition and agriculture as well as on HIV prevention, treatment and care. The impact of HHI on food insecure HIV-infected patients is currently being evaluated.

use of inputs; improving livelihood options in and around the community (reduced reliance on “food for sex”); and extending the growing season through small-scale irrigation and product diversification.

- *Raising living standards of households and communities over the long-run.* Productivity-enhancing investments in agricultural technology generation and diffusion, improved crop marketing systems, basic education, infrastructure, and governance –improve people’s ability to withstand the social and economic stresses caused by HIV/AIDS.³⁴

Furthermore, public-private partnerships provide an opportunity to leverage resources to support food-related interventions. By developing relationships with local food industries, Emergency Plan partners can provide technical assistance to producers of fortified products so that they can supply safe, effective products for PLWHA. Quality assurance will ensure credibility of the products.

(d) Addressing Micronutrient Requirements

Broadly speaking, the nutrient needs of PLWHA and OVCs are best met through consumption of a diverse diet, including fortified foods. However, targeted micronutrient supplementation may be necessary for high-risk individuals, such as malnourished PLWHA and

pregnant and lactating women, where dietary assessment determines that intake of micronutrient-rich foods are inconsistent and likely inadequate. Furthermore, HIV-infected infants and young children require routine vitamin A supplementation, as well as a course of zinc supplements for the treatment of diarrhea. Additional multi-micronutrient supplementation is recommended for those children who are unable to meet daily micronutrient requirements through local diets.

When required, micronutrient supplements should be provided at a single RDA level: there is currently no evidence to support micronutrient requirements for HIV-infected individuals different from recommendations for the general population. This point should be emphasized in counseling and education, particularly for PLWHA who would “self-medicate” with mega-doses of vitamins and minerals with the potential to interfere with the efficacy of ARVs and other drug treatment. Furthermore, efforts should be made to link micronutrient supplementation to food-related activities that can improve the quality of the individual’s diet.

5.3.b.iv Prevention of Mother-to-Child Transmission (PMTCT)

In accordance with WHO, UNICEF and UNAIDS guidelines,³⁵ Emergency Plan programs should support the principle of individual, informed choice for all mothers with respect to mode of infant feeding, i.e. breastfeeding versus replacement feeding. In addition, Emergency Plan programs must also be consistent with the guidelines and policies established by host countries. Mothers who are HIV-negative or do not know their HIV status should be counseled to exclusively breastfeed for approximately 6 months, and thereafter introduce appropriate complementary foods and continue breastfeeding for 2 years or longer. HIV-positive mothers should be counseled, on an individual basis, to avoid all breastfeeding from birth if replacement feeding is acceptable, feasible, affordable, sustainable and safe (AFASS). Otherwise, exclusive breastfeeding is recommended during the first months of life, and then should be discontinued as soon as AFASS conditions can be met. When HIV-infected mothers choose not to breastfeed from birth or wean early, they should be provided with specific counseling and support for at least the first year of the child’s life to ensure adequate replacement feeding and child survival.

Emergency Plan procurement and provision of infant

³⁵ WHO/UNICEF/UNAIDS/UNFPA (2003). “HIV and Infant Feeding: Guidelines for Decision-Makers.” http://www.who.int/child-adolescent-health/New_Publications/NUTRITION/HIV_IF_DM.pdf.

³⁴ Jayne et al. 2005.

formula and other replacement foods is permissible and may be warranted in some cases within the context of national guidelines and with a focus on the agreed-upon program support to ensure maximum benefit of this approach. In general, Emergency Plan support should focus on program activities, e.g. nutritional assessment, and especially counseling and support, while relying to the extent possible on other partners and donors, e.g. MOH and GFATM, for procurement of formula and other food and nutrition commodities. Because of the increased vulnerability of exposed infants who are weaned early, PMTCT/OVCs programs should link with maternal and child health programs to ensure that these infants are protected by basic child survival interventions.

5.4 Supporting Program Implementation

USG country teams will continue to spearhead the effort to facilitate cross-agency and cross-sectoral work at the field and headquarters levels.

5.4a Coordination of Funding and Resource Allocation

Emergency Plan resources may be used to target the groups detailed in section 5.2, for the types of interventions described in section 5.3. PEPFAR resources should be seen as a last resort for food purchase, used only as a component of treatment for HIV-positive clients and care for OVCs. Any proposal for using PEPFAR resources for food commodities must specify a clear exit strategy. Acknowledging that different agencies have different budget cycles and planning calendars, country team members agree that, at the planning stage of proposals containing HIV/AIDS and nutrition components, they will have a meeting to bring together the USDA, USAID, Peace Corps, etc. to discuss the proposal and determine how they can best coordinate their efforts to achieve the end goal. The Country Operational Plan (COP) development and the Washington review and approval process will provide an opportunity to develop new activities and review and adjust existing ones as needed. Furthermore, the in-country interagency teams that are working on food security issues and the intersection between food and HIV/AIDS will coordinate with other donors, including the UN, multilateral organizations, PVOs and the private sector, to leverage resources to address the long-term food security and nutrition needs of PLWHA, OVCs and affected families and communities that are beyond the scope of this strategy and the resources of the Emergency Plan to address.

5.4b Nutritional Products

USAID, USDA, and WFP have expertise on the procurement and distribution of food, and the Emergency Plan looks to their knowledge and experience for planning the delivery of food and nutrition products targeted specifically at PLWHA. In addition, as the Emergency Plan has many local implementing partners including associations of PLWHA which may be involved in HIV care and support programs, where appropriate, country programs may work with local producers and indigenous NGOs that can produce, distribute, and monitor appropriate foods and products. The Kenyan model provides a good example of having not only a mechanism for procuring food and distributing it, but also having built-in training and capacity building for end distributors, along with operations research in order to establish the impact of the food intervention.

5.4c Technical Support and Quality Assurance

The Emergency Plan USG interagency Food and Nutrition Technical Working Group (F&N TWG) is developing policy and technical guidelines to be disseminated to the field, and will continue to provide technical assistance.

The Emergency Plan supports quality assurance of food and nutrition-related interventions to support PLWHA, namely by providing support for:

- Development and use of national guidelines on nutritional care and support of PLWHA;
- Standard operating procedures (SOPs) to integrate nutrition interventions into HIV/AIDS prevention, care, and treatment programs;
- Quality standards for nutritional assessment and counseling;
- Training on the delivery of high quality nutrition services, as well as on the use of job aids to improve and standardize performance;
- Supervisory systems to monitor quality and identify effective models of service delivery; and
- M&E systems that adequately monitor service delivery and evaluate outcomes, to ensure high quality of services and to make mid-course corrections to implementation, as needed.

Monitoring and Evaluation (M&E)

Monitoring and Evaluation is one of the core principles of the “Three Ones”: one agreed-upon country-level monitoring and evaluation system. All USG agencies working in nutrition and food recognize the importance

of monitoring and evaluation of its programs and support it at the point of service delivery, as well as at a national and global level. This information must be integrated within the national M&E system, which will, in part, determine what information can be collected and how it can be gathered. The goals of M&E should be to monitor progress of USG programs, including Emergency Plan interventions, to make program management decisions that are based on sound program data, to ensure that interventions are cost-effective, and to document the immediate and long-term results of investments in food and nutrition activities.

Challenges and Next Steps

Providing for the food and nutritional needs of PLWHA receiving care and treatment is a complex undertaking that requires resources and coordination across USG and multilateral partners. While this strategy attempts to lay out a comprehensive and effective approach, we recognize that there are challenges to implementing this strategy and that further research must be conducted in order to address some of the pressing issues at hand. Some of the major challenges in providing food and nutritional support to PLWHA include:

Reporting and Monitoring

- Types of data and analyses for country program reporting on their food- and nutrition-related activities;
- Monitoring the costs and effectiveness of food and nutrition interventions over time; and,
- Improving inter-agency coordination to develop and report consistently on a standard set of indicators across USG.

Coordination

- Improving harmonization and consistency across food and nutrition interventions and program approaches;
- Improving linkages and coordination at the country level among agencies and sector programs within agencies; and,
- Improving mechanisms for procurement, distribution, and monitoring of food and nutrition supplements.

Costs

- Clarifying which agencies cover what costs for which components of food and nutrition interventions.

Food

- Continuing development of best program models to deliver nutrition and, when needed food interventions that work within the context of limited human resource capacity and the network model of care;
- Refining appropriate exit criteria for therapeutic and supplementary feeding based on anthropometric and clinical criteria rather than a fixed time frame;
- Appropriate budgeting for food within comprehensive HIV/AIDS programs based on clinical cost effectiveness for PLWHA and OVCs;
- Implementing a consistent tracking system for tracking of food commodities;
- Coordinating with USDA FFP and WFP to ensure that there is continued follow-up and clinical support for PLWHA and OVCs receiving therapeutic and supplementary feeding; and
- Identifying opportunities for Emergency Plan support for program support associated with use of Title II and WFP food assistance to targeted PLWHA and OVCs rather than monetizing food commodities to cover program costs.

Recommendations

- Policy and technical guidance to be drafted by the Food & Nutrition Technical Working Group, based on this strategy and disseminated to USG country teams;
- Working with in-country teams as they develop their FY 07 COPs to incorporate nutrition, and where appropriate food, with country programs;
- Facilitating ongoing planning and support to ensure better USG inter-agency coordination on nutrition and food activities at headquarter and country levels.

Conclusion

The USG recognizes the role that food and nutrition can play in accomplishing the 2-7-10 goals of the Emergency Plan to support prevention of HIV infection, care and antiretroviral treatment for people living with and affected by HIV/AIDS (including orphans and vulnerable children). Incorporating food and nutrition into these programs is a task, that one USG agency cannot address alone. It requires a coordinated approach to build on the extensive resource base and capacity of all USG agencies working in the sector, as well as our implementing agency and international partners. The USG is coordinating internally (USAID, USDA, HHS,

and Peace Corps) and with UN agencies, private volunteer organizations and other partners to integrate food and nutrition interventions and activities within HIV/AIDS care and treatment programs. With a shared focus on the most vulnerable populations, these partners will work together to deliver the food and nutrition that is vital to providing effective care and treatment to those infected and affected with HIV/AIDS.

Annex Section

Bibliography

- Abbot, J., M. Lenka, P. J. Lerotholi, M. Mahao, and S. Mokhamaleli. 2005. From condoms to cabbages: Rethinking agricultural interventions to mitigate the impacts of HIV/AIDS in Lesotho.
- Abrams DI. 2000. *Potential interventions for HIV/AIDS wasting: An overview*. J Acquir Immune Defic Syndr; 25: S74-S80.
- AED (Academy for Educational Development). 2003. *Multisectoral responses to HIV/AIDS: A compendium of promising practices from Africa*. Washington, D.C.
- Allen, L., and Gillespie, S. 2001. *What works? A review of the efficacy and effectiveness of nutrition interventions*. Geneva: United Nations ACC/SCN and Asian Development Bank.
- Alumira, J., C. S. Bantilan, and T. Sihoma-Moyo. 2005. *HIV/AIDS impact mitigation: Convergence of short-term humanitarian and longer-term development interventions in implementing multisectoral strategies: Challenges for research*.
- Barnett, Tony. 2005. *HIV/AIDS and food and nutrition security: Future challenges*.
- Barnett, T., and D. Topouzis. 2003. *FAO and HIV/AIDS: Towards a food and livelihoods security based strategic response*. Rome: Sustainable Development Department, FAO.
- Batterham, M. J., R. Garsia, and P. Greenop. 2002. Prevalence and predictors of HIV-associated weight loss in the era of highly active antiretroviral therapy. *International Journal of STD & AIDS* 13: 744–747.
- Baum, M. K., and G. Shor-Posner. 1998. Micronutrient status in relationship to mortality in HIV-1 disease. *Nutrition Reviews* 56 (1 Part 2): S135–S139.
- Bijlsma, M. 1996. *Living positively: a nutrition guide for people with HIV/AIDS*. Second ed. 1997. Mutare City Health Department, Box 910, Mutare, Zimbabwe.
- Binswanger, H., S. Gillespie, and S. Kadiyala. 2005. *Scaling up multi-sectoral approaches to combating HIV/AIDS: What have we learnt and what should be done?*
- Bishop-Sambrook, C., N. Alemayehu, Y. Assegid, G. Woldewahid, and B. Gebremedhin. 2005. The rural HIV/AIDS epidemic in Ethiopia and its implications for market-led agricultural development.
- Bonnard, P. 2002. *HIV/AIDS Mitigation: Using what we already know*. Washington DC: Food and Nutrition Technical Assistance Project, Academy for Educational Development.
- Caldwell, R. 2005. *Food aid and chronic illness: Insights from the community and household surveillance surveys*.
- Carr, A. and D. Cooper. 2000. “Adverse Effects of Antiretroviral Therapy.” *The Lancet*, 356: 1423-30.
- Castleman, Tony, Eleonore Seumo-Fosso, and Bruce Cogill. 2003. *Food and Nutrition Implications of Antiretroviral Therapy in Resource Limited Settings*. Washington, D.C.: Food and Nutrition Technical Assistance Project, Academy for Educational Development.
- Ciliberto MA, Sandige S, Ndekha MJ, Ashorn P, Briend A, Ciliberto HM, Manary MJ. *A comparison of home-based therapy with ready-to-use therapeutic food with standard therapy in the treatment of malnourished Malawian children: a controlled, clinical effectiveness trial*. Accepted for publication *Am J Clin Nutr*.
- Coutsoudis, A., and N. Rollins. 2003. Breast feeding and HIV transmission: The jury is still out. *Journal of Pediatric Gastroenterology and Nutrition* 36: 434–442.
- Currier, J. 2001. “Metabolic Complications of Antiretroviral Therapy and Infection.” *HIV/AIDS: Annual Update 2001*. iMedOptions, Medscape.

- Department of Health. 2001. *South African national guidelines on nutrition for people living with TB, HIV/AIDS and other debilitating diseases*. September. Pretoria, South Africa.
- Donovan, C., and L. Bailey. 2005. Understanding Rwandan agricultural households' strategies to deal with prime age illness and death: A propensity score matching approach.
- Dorward, A., and I. Mwale. 2005. Labour market and wage impacts of HIV/AIDS in rural Malawi.
- Drimie S., and D. Mullins. 2005. *Mainstreaming HIV and AIDS into livelihoods and food security programmes: The experience of CARE Malawi*.
- Du Guerny, J. 2002. *Meeting the HIV/AIDS challenge to food security: The role of labor saving technologies in farm households*. Bangkok: UNDP Southeast Asia.
- Egge, Kari and Susan Strasser. 2005. *Measuring the Impact of Targeted Food Assistance on HIV/AIDS-Related Beneficiary Groups with a specific focus on TB, ART, CI and PMTCT Beneficiaries*. C-SAFE Learning Spaces Initiative, November.
- Epstein, L. 1995. *Food for those with HIV/AIDS*. Second ed. 1996. Pretoria, South Africa, Hope Productions. NAP+ Secretariat, PO Box 30218, Nairobi, Kenya.
- FANTA. 2003. *HIV/AIDS: A Guide for Nutritional Care and Support, 2nd Edition*. Food and Nutrition Technical Assistance Project, Academy for Educational Development.
- FANTA. 2004. *HIV/AIDS and Food Aid: Assessment for Regional Programs and Resource Integration*. Washington, D.C.: November, FANTA.
- FANTA. 2004. *AMPATH- Academic Model for the Prevention and Treatment of HIV/AIDS*. retrieved on 12/20/04 from www.fantaproject.org/events/ampath04.shtml
- FAO/WHO. 2003. *Living Well with HIV/AIDS*. Rome: FAO.
- FAO. 2003. *Incorporating HIV/AIDS considerations into food security and livelihood projects*. Rome: FAO.
- FAO. 2003. *Food security and HIV/AIDS: An update. Committee on World Food Security, 29th Session, Rome, 12–16 May*. Retrieved 12/29/04 from www.fao.org/DOCREP/MEETING/006/Y9066e00.HTM
- Fawzi, W. 2003. Micronutrients and human immunodeficiency virus type 1 disease progression among adults and children. *Clinical Infectious Diseases* 37 (Supplement 2): S112-S116.
- Fawzi, W., G. Msamanga, D. Spiegelman, R. Wei, Kapiga, E. Villamor, D. Mwakagile, F. Mugusi, E. Hertzmark, M. Essex, and D. Hunter. 2004. A randomized trial of multivitamin supplements and HIV disease progression and mortality. *New England Journal of Medicine* 351 (1): 23-32.
- Fields-Gardner C., C. Thompson, and S. Rhodes. 1997. *A Clinician's Guide to Nutrition in HIV and AIDS*. Chicago: American Dietetic Association.
- Friis, Henrik. 2005. "Micronutrients and HIV infection: a review of current evidence" Consultation on Nutrition and HIV/AIDS in Africa: Evidence, lessons and recommendations for action. Durban, South Africa 10–13 April.
- Gilbert CL, Wheeler DA, Collins G, Madans M, Muurahainen N, Raghaven SS, Bartsch G. 1999. Randomized, controlled trial of caloric supplement in HIV infection. *J AIDS*; 22:253-259.
- Gillespie, Stuart and Suneetha Kadiyala. 2005. *HIV/AIDS and Food and Nutrition Security: From Evidence to Action*. Food Consumption and Nutrition Division Food Policy Review 7, International Food Policy Research Institute, Washington, D.C.
- Gillespie, Stuart. 2005. *Interactions and Impacts: How HIV/AIDS Interacts with Food and Nutrition Security: An Overview to Volume 1*. Conference Proceedings from the International Conference on HIV/AIDS and Food and Nutrition Security, Durban, 14-16 April 2005.

- Gillespie, Stuart. 2005 *Policy and Program Responses: Responding to the Interactions between HIV/AIDS and Food and Nutrition Security: An Overview to Volume II*. Conference Proceedings from the International Conference on HIV/AIDS and Food and Nutrition Security, Durban, 14-16 April 2005.
- Greenaway, K., and D. Mullins. 2005. *The HIV/AIDS timeline as a program tool: Experiences from CARE and C-SAFE*.
- Greenaway, K. and K. Greeblott (C-SAFE) and C. Hagens (TANGO International). *Targeted Food Assistance in the Context of HIV/AIDS. Better Practices in C-SAFE Targeted Food Programming in Malawi, Zambia, and Zimbabwe*. Accessed 02/27/06 from: <http://www.c-safe.org/downloads/TFAFinal.pdf>
- Haddad, Lawrence and Stuart Gillespie. 2001. *Effective Food and Nutrition Policy Responses to HIV/AIDS: What we know and what we need to know*. Food Consumption and Nutrition Division, International Food Policy Research Institute, Washington, D.C.
- Irlam JH, Visser ME, Rollins N, Siegfried N. 2005. "Micronutrient supplementation in children and adults with HIV infection (Review)." *The Cochrane Library* Issue 4.
- Jayne, T. S., M. Villarreal, P. Pingali, and G. Hemrich. 2005. HIV/AIDS and the agricultural sector in Eastern and Southern Africa: Anticipating the consequences.
- Jayne, T. S., M. Villarreal, and P. Pingali. 2003. *Interactions between the agricultural sector and the HIV/AIDS pandemic*. Rome: FAO.
- Kadio, D., M. Kaba, K. Blackett, S. Sidibe, K. Anah, and W. Fleming. *Improving the nutritional status of orphans and malnourished children in Guinea*.
- Kadiyala, S. 2004. *Scaling up HIV/AIDS interventions through expanded partnerships (STEPs) in Malawi*. Food Consumption and Nutrition Division Discussion Paper 179. Washington, D.C.: International Food Policy Research Institute.
- Kadiyala, Suneetha and Stuart Gillespie. 2003. "Rethinking Food Aids to Fight HIV/AIDS," Food Consumption and Nutrition Division Discussion Paper 159, International Food Policy Research Institute, Washington, D.C.
- Kelly, P., R. Musonda, E. Kafwembe, L. Kaetano, E. Keane, and M. Farthing. 1999. Micronutrient supplementation in the AIDS diarrhoea-wasting syndrome in Zambia: A randomized controlled trial. *AIDS* 13 (4): 495-500.
- Loevinsohn, M. and S. R. Gillespie. 2003. HIV/AIDS, Food Security and rural livelihoods: Understanding and responding. Food Consumption and Nutrition Division Discussion Paper 157. Washington, D.C.: International Food Policy Research Institute.
- Macallan DC. Wasting in HIV infection and AIDS. *Journal of Nutrition*. 1999; 129:238S-242S.
- Macallan, D.C. (1999). Dietary intake and weight loss patterns in HIV infection. In: *Nutritional aspects of HIV Infection*. Miller, T.I. and S.L. Gorbach (ed). Oxford University Press: New York.
- Marston, B., and K. M. De Cock. 2004. Multivitamins, nutrition, and antiretroviral therapy for HIV disease in Africa. *New England Journal of Medicine* 351 (1): 78-80.
- Mather, D., D. Donovan, T. Jayne, M. Webster, E. Mazhangara, L. Bailey, K. Yoo, T. Yamano and E. Mghenyi. 2004. *A cross-country analysis of household responses to adult mortality in rural sub-Saharan Africa: Implications for HIV/AIDS mitigation and rural development policies*. Paper prepared for the International AIDS Economic Network Pre-Conference, Bangkok, Thailand, 9-10 July.
- Mazzeo, J. and Luther, K. 2002. Literature Review on HIV/AIDS: Livelihoods. Tucson, AZ: TANGO International.
- Montessori, V., N. Press, M. Harris, L. Akagi, and J. S. G. Montaner. 2004. Adverse effects of antiretroviral therapy for HIV infection. *Canadian Medical Association Journal* 170 (2): 229-238.

- Mutangadura, G., D. Mukurazita, and H. Jackson. 1999. *A review of household and community responses to HIV/AIDS epidemic in rural areas of sub-Saharan Africa*. UNAIDS Best Practice Collection. Geneva: UNAIDS.
- Nerad, J., M. Romeyn, E. Silverman, J. Allen-Reid, D. Dietrich, J. Merchant, V. Pelletier, D. Tinnerello, and M. Fenton. 2003. "General Nutrition Management in Patients Infected with Human Immunodeficiency Virus." *Clinical Infectious Disease*.
- Network of African people living with HIV/AIDS (NAP+). 1996. *Food for people living with HIV/AIDS*. Pretoria, South Africa, Hope Productions. NAP+ Secretariat, PO Box 30218, Nairobi, Kenya.
- O'Donnell, M. (August, 2004). *Food Security, Livelihoods, & HIV/AIDS: A Guide to the Linkages, Measurement & Programming Implications*. London: Save the Children-UK.
- Papathakis, Peggy and Nigel Rollins. 2005. "HIV and nutrition: pregnant and lactating women." *Consultation on Nutrition and HIV/AIDS in Africa: Evidence, lessons and recommendations for action, Durban, South Africa, 10–13 April*.
- Piwoz, Ellen et al (2004) "Nutrition and HIV/AIDS: Evidence, Gaps, and Priority Actions." Support Analysis and Research in Africa (SARA) Project, USAID.
- Piwoz, Ellen and Elizabeth Preble (2000) "HIV/AIDS and Nutrition: A review of the Literature and Recommendations for Nutritional Care and Support in Sub-Saharan Africa." Support for Analysis and Research in Africa (SARA) Project, USAID.
- Polsky, B., D. Kotler, and C. Steinhart. 2004. Treatment guidelines for HIV-associated wasting. *HIV Clinical Trials* 5 (1): 50–61.
- Position of the American Dietetic Association and the Dieticians of Canada: Nutrition intervention in the care of persons with human immunodeficiency virus infection. *J Am Diet Assoc* 2004; 104: 1425-1441.
- Pronsky, Z., S.A. Meyer and C. Fields-Gardner. 2001. *HIV Medications Food Interactions*. Second Edition. Birchrunville, PA.
- Rabeneck L, Palmer A, Knowles JB, Seidehamel RJ, Harris CL, Merkel KL, et al. A randomized trial evaluating nutrition counselling with or without oral supplementation in malnourished HIV-infected patients. *J Am Diet Assoc* 1998; 90:434-438.
- Raiten, Daniel J., Steven Grinspoon and Stephen Arpadi (2005) "Nutritional considerations in the use of ART in resource limited settings. World Health Organization (Department of Nutrition for Health and Development). Durban, South Africa 10-13 April 2005.
- Rousseau, M. C., C. Molines, J. Moreau, and J. Delmont. 2000. Influence of highly active antiretroviral therapy on micronutrient profiles in HIV-infected patients. *Annals of Nutrition and Metabolism* 44 (5–6): 212–216.
- Rivers, J., J. Mason, E. Silvestre, M. Mahy, R. Monasch, and S. Gillespie. 2005. The nutritional and food security status of orphans and vulnerable children in Sub-Saharan Africa.
- Saadeh, Randa, Peggy Henderson and Cota Vallenias. 2005. "Infant feeding and HIV transmission." *Consultation on Nutrition and HIV/AIDS in Africa: Evidence, lessons and recommendations for action Durban, South Africa, 10–13 April*.
- Saag, M. S. 2004. Initiation of antiretroviral therapy: Implications of recent findings. *Topics in HIV Medicine* 12 (3): 83–88.
- Semba, R. D., and A.M. Tang. 1999. Micronutrients and the pathogenesis of human immunodeficiency virus infection. *British Journal of Nutrition* 81(3): 181-189.
- Siika, M., S. Lewis, L. Chesire, F. Komen, S. N. Kimaiyo, W. M. Nyandiko, J. E. Sidle, K. Wools-Kaloustian, R.M. Einterz, and J. J. Mamlin. 2005. AMPATH's HAART 'n' HARVEST Initiative: Addressing the nutritional needs of HIV-infected patients on anti-retroviral therapy.
- Seumo-Fosso, E., and B. Cogill. Meeting Nutritional Requirements of HIV-Infected persons.
- Stewart, J., K. Kayira, K. Greenaway, and K. Greenblott. 2005. Food assets programming through an HIV/AIDS lens: C-SAFE's experience in creating an HIV/AIDS analysis tool for practitioners.

- Strasser, S., K. Egge, J. Huddle, and K. Greenaway. 2005. Measuring the effects of targeted food assistance on beneficiaries with chronic illness: Lessons learned from literature and the field.
- Stokes, C. S. 2002. Measuring impacts of HIV/AIDS on rural livelihoods and food security. Rome: Gender and Population Division, FAO.
- Swindale, A. (FANTA) Assessing the Potential for Food Aid Interventions in High HIV Prevalence Contexts. Presentation at Entebbe, Uganda November 2-5, 2004. Retrieved from www.fantaproject.org/downloads/pdfs/hfa04_3p.pdf
- Tang, A. M., et al. 2002. Weight loss and survival in HIV-positive patients in the era of highly active antiretroviral therapy. *Journal of Acquired Immune Deficiency Syndromes* 31: 230-236.
- Tang, A. M. 2003. Weight loss, wasting, and survival in HIV-positive patients: Current strategies. *AIDS Reader* 13 (Supplement 12): S23–S27.
- Tang, A. M., N. M. Graham, A. J. Kirby, L. D. McCall, W. C. Willett, and A. J. Saah. 1993. Dietary micronutrient intake and risk of progression to acquired immunodeficiency syndrome (AIDS) in human immunodeficiency virus type 1 (HIV-1)-infected homosexual men. *American Journal of Epidemiology* 138 (11): 937–951.
- Tang, A. M., N. M. Graham, and A. J. Saah. 1996. Effects of micronutrient intake on survival in human immunodeficiency virus type 1 infection. *American Journal of Epidemiology* 143 (12): 1244–1256.
- TANGO International. 2002. An initiative to address HIV/AIDS in the region. Kampala, Uganda: East and Southern Africa Bureau, World Food Programme.
- TANGO International. 2005. Food Aid Programming in the Era of HIV and AIDS: Literature Review. Food and Nutrition Technical Assistance Project (FANTA). Draft not for circulation.
- Tomkins, A. 2004. *Nutrition and HIV/AIDS Working Group of the SCN. A report of a meeting held at UNICEF, New York, 24 March 2004.* <http://www.unsystem.org/scn>.
- Tomkins, A., and F. Watson. 1989. *Malnutrition and infection.* Geneva: ACC/SCN State-of-the-Art Series Nutrition Policy Discussion Paper 5.
- United Nations Administrative Committee on Coordination/Subcommittee on Nutrition. 2001. *Nutrition and HIV/AIDS.* Nutrition Policy Paper No. 20. ACC/SCN: Geneva.
- U.S. Public Health Service and Infectious Diseases Society of America. 2001. USPS/IDSA Guidelines for the Prevention of Opportunistic Infections in Persons Infected with HIV. November.
- Wanke, C. A., M. Silva, T. A. Knox, J. Forrester, D. Spiegelman, and S. L. Gorbach. 2000. Weight loss and wasting remain common complications in individuals infected with human immunodeficiency virus in the era of highly active antiretroviral therapy. *Clinical Infectious Diseases* 31 (3): 803-805.
- Weiser, S., W. Wolfe, D. Bangsberg, I. Thior, P. Gilbert, J. Makhema, P. Kebaabetsw, D. Dickenson, K. Mompoti, M. Essex, and R. Marlink. 2003. Barriers to antiretroviral adherence for patients living with HIV infection and AIDS in Botswana. *Journal of Acquired Immune Deficiency Syndromes* 34 (3):281-288.
- Waysong CS, Shey MS, Sterne JAC, Brocklehurst P. 2005. “Vitamin A supplementation for reducing the risk of mother-to-child transmission of HIV infection (Review).” The Cochrane Library Issue 4.
- World Health Organization. 2005. “Nutrition and HIV/AIDS: Activities undertaken 2004-2005: Report by the Secretariat (117th session).” 22 December.
- World Health Organization (2005) “Participants’ Statement: Consultation on Nutrition and HIV/AIDS in Africa: Evidence, lesson and recommendations for action.” Durban, South Africa 10-13 April 2005.
- World Health Organization (Department of Nutrition for Health and Development) (2005) “Executive Summary of a scientific review: Consultation on Nutrition and HIV/AIDS in Africa: Evidence, lesson and recommendations for action.” Durban, South Africa 10-13 April 2005.
- World Health Organization (2005) “Nutrition and HIV/AIDS: Report by the Secretariat (116th session).” 12 May 2005.

World Health Organization (2004) “Nutrition Counseling, Care and Support for HIV-Infected Women.” 2004

World Health Organization (2003) Nutrient requirements for people living with HIV/AIDS: Report of a technical consultation WHO, Geneva, 13-15 May.

World Vision. 2004. Integration of Food Security and HIV/AIDS Programming: A Study of World Vision’s Experience and Lessons Learned. Models of Learning Program: HIV/AIDS Hope Initiative. Draft for review.