POLICY BRIEF

HIV, FOOD SECURITY and NUTRITION

Expanded version

Context

Often neglected, food security[1] and nutrition[2] are critical for individuals, households and communities affected by HIV. Lack of food security and poor nutritional status may hasten progression to AIDS-related illnesses,[3–5]undermine adherence and response to antiretroviral therapy, and exacerbate socioeconomic impacts of the virus. HIV infection itself undermines food security and nutrition by reducing work capacity and productivity, and jeopardizing household livelihoods.

Addressing food security and nutrition in all settings is vital to achieving the goal of universal access to HIV prevention, treatment, care and support by 2010, to which all Member States of the United Nations have committed themselves.[6] This policy brief focuses on the interrelationship between food security, nutrition and HIV,[7] and highlights the actions that governments, civil society and international partners can take to promote food security and nutrition in the context of the AIDS epidemic.

Why do food security and nutrition matter in responding to HIV?

HIV impairs nutritional status by undermining the immune system, as well as nutrient intake, absorption and use.[8] Malnutrition can exacerbate the effects of HIV and hasten AIDS-related illnesses in people living with HIV. Adults living with HIV have 10–30% higher energy requirements than a healthy adult without HIV, and children living with HIV 50–100% higher than normal requirements[9,10] Food availability and good nutrition are thus essential for keeping people living with HIV healthy for longer.[11] A stronger, healthier body can better resist the opportunistic infections[12] that affect people living with HIV, especially in resource-poor settings where preventive health care is not often available.

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[1] Food security involves: (a) availability of nutritious foods; (b) reliable access to that food (through production of food; ability to purchase food; or support from safety-net programmes or from other people); and (c) appropriate use of that food within the home.

[2] Good nutrition also involves good caring practices. For example, a mother may have reliable access to the components of a healthy diet but because of poor health or improper care, ignorance, or gender or personal preferences may not be able to use the food in a nutritionally sound manner.

[3] Gillespie S, Kadiyala S (2005). *HIV/AIDS and food and nutrition security: from evidence to action*. Washington, DC, International Food Policy Research Institute (Food Policy Review No. 7). For links between food security and HIV, especially among pregnant women and girls, and maturation and malnutrition, see an overview in Edström J, Samuels F (2007). *HIV, nutrition, food and livelihoods in sub-Saharan Africa: evidence, debates and reflections for guidance*. Institute for Development Studies and Overseas Development Institute. June. pp. 8–9. For details of the link between malnourishment and vulnerability to infectious diseases, see Scrimshaw N, SanGiovanni JP (1997). Synergies of nutrition, infection and immunity: an overview. *American Journal of Clinical Nutrition*, 66:464S–477S.

[4] There is convincing evidence showing a predictive link between losses in weight, fat-free mass, and body cell mass, and fat mass and adverse clinical outcomes, including death, in people living with HIV. See: Paton NI et al. (2006). The impact of malnutrition on survival and the CD4 count response in HIV-infected patients starting antiretroviral therapy. *HIV Medicine*, 7(5), 323–330; Gillespie & Kadiyala (2005), op. cit. 3; for a review, see WHO Consultation on Nutrition and HIV/AIDS in Africa. Durban, South Africa, 10–13 April 2005 (http://www.who.int/nutrition/topics/Executive%20Summary%20WHO.pdf).

[5] For latest literature reviews, see: Edström & Samuels (2007), op. cit. 3; Gillespie & Kadiyala (2005), op. cit. 3; Friis H (2006). Micronutrient intervention and HIV infection: a review of current evidence. *Tropical Medicine & International Health*, 11(12):1–9; Raiten DJ, Grinspoon S, Arpadi S (2005). *Nutritional considerations in the use of ART in resource-limited settings*. WHO Consultation on Nutrition and HIV/AIDS in Africa. Durban, South Africa, 10–13 April 2005.

[6] United Nations General Assembly Resolution 60/262 (2006). *Political Declaration on HIV/AIDS*. 15 June 2006. Article 20 (http://data.unaids.org/pub/Report/2006/20060615_HLM_PoliticalDeclaration_ARES60262_en.pdf).

[7] This brief specifically focuses on the qualitative and quantitative food and nutrition aspects for people living with HIV.

[8] Piwoz E, Preble E (2000). *HIV/AIDS and nutrition: a review of the literature and recommendations for nutritional care and support in sub-Saharan Africa*. United States Agency for Development; Semba RD, Tang AM (1999). Micronutrients and the pathogenesis of human immunodeficiency virus infection. *The British Journal of Nutrition*, 81(3):181–189; Fawzi W (2003). Micronutrients and human immunodeficiency virus type 1 disease progression among adults and children. *Clinical Infectious Diseases*, 37:S112–S116. For more on weight loss, wasting and HIV, see: Süttmann U et al. (1995). Incidence and prognostic value of malnutrition and wasting in human immunodeficiency virus-infected outpatients. *Journal of Acquired Immune Deficiency Syndromes and Human Retrovirology*, 8(3):239–246; Tang AM (2003). Weight loss, wasting and survival in HIV-positive patients: current strategies. *The AIDS Reader*, 13 (Suppl. 12):S23–S27; Tang AM et al. (2002). Weight loss and survival of HIV-positive patients in the era of highly active antiretroviral therapy. *Journal of Acquired Immune Deficiency Syndromes*, 31:230–236; Wheeler DA et al. (1998). Weight loss as a predictor of survival and disease progression in HIV infection. *Journal of Acquired Immune Deficiency Syndromes*, 18(1):80–85.

[9] Energy requirements vary according to symptomatic or asymptomatic status. See: WHO (2003). *Nutrient requirements for people living with HIV/AIDS*. p. 4; Seume-Fosso E et al. (2004). *Food and nutrition technical assistance. HIV/AIDS: a guide for nutritional care and support*. Washington, DC, Food and Nutrition Technical Assistance Project. October 2004; World Bank (2007). *HIV/AIDS, nutrition and food security: what we can do. A synthesis of international guidance*. Washington, DC, World Bank (http://siteresources.worldbank.org/NUTRITION/Resources/281846-1100008431337/HIVAIDSNutritionFoodSecuritylowres.pdf), p. 10.

[10] Energy requirements are higher due to factors such as presence of fever and infection, losses due to diarrhoea or vomiting, respiratory complications, and the need for catch-up growth and weight gain (http://www.pronutrition.org/archive/200303/msg00022.php).

[11] Friis (2006), p. 7, op. cit. 5.

[12] Illnesses caused by various organisms that occur in people with weakened immune systems, including people with HIV/AIDS. OIs [opportunistic infections] common in people with AIDS include Pneumocystis carinii pneumonia; cryptosporidiosis; histoplasmosis; toxoplasmosis; other parasitic, viral, and fungal infections; and some types of cancers (http://aidsinfo.nih.gov/Glossary/GlossaryDefaultCenterPage.aspx?MenuItem=AIDSinfoTools). Tuberculosis [TB] is the most deadly opportunistic infection associated with HIV. TB and HIV and AIDS compromise nutritional status, which can lead to malnutrition, which in turn exacerbates HIV and TB. See WFP (2006). *HIV/AIDS, TB and malnutrition: triple trouble*. June 2006.

Prevention of HIV transmission

At the individual level, the immune system is weakened by both HIV and malnutrition, which combine to increase susceptibility to coinfections and accelerate progression of HIV-related diseases.[13] Poor nutritional status may also increase the risk of HIV transmission from mother to child.[14] Lack of food security constrains people's choices about work and education, and child feeding and rearing, and can lead to increased mobility for work. Mobility and limited options for earning an income in turn can lead to high-risk behaviours such as engaging in sex for food or money.[15,16]

There is a positive association between education and reduction in HIV risk. Better educated children are more likely to absorb prevention information and adopt safer behaviours.[17] The completion of secondary school, especially among young women, may lower the risk of HIV infection.[18] Yet households that are food insecure are often forced to take children out of school in order to work to supplement the income lost as a result of their parents' illness and/or death.[19,20]

Women, food security and HIV

Women are biologically, socially and economically more vulnerable than men to HIV.[21] People without access to adequate food, income and land, especially women and girls, are more likely to be forced into situations that place them at risk of HIV infection. High-risk situations can include migration and mobility for work (also, migrant and mobile communities often have poor(er) access to health care), transactional or commercial sex or staying in high-risk or abusive sexual relationships due to economic or social dependency. [22]

Women are usually involved in producing, purchasing and preparing food. When a woman is HIV-positive, household food security is impacted, as these responsibilities shift to younger, more inexperienced women in the home. Women are also primary caregivers. Caring for ill family members means less time is available for food production and preparation.[23]

Some 90% of HIV-positive children contract the virus from their mother during pregnancy, delivery or breastfeeding.[24] Inadequate nutritional status may increase the risk of vertical HIV transmission by influencing maternal and child factors related to transmission.[25] HIV-positive mothers also need access to appropriate information and replacement feeding options, in order to minimize the risk of transmission during breastfeeding.[26]

[13] Macallan DC et al. (1995). Energy expenditure and wasting in human immunodeficiency virus infection. *New England Journal of Medicine*, 333(2):83–88. Babameto G, Kotler DP (1997). Malnutrition in HIV infection. *Gastroenterology Clinics of North America*. 26(2):393–415; Macallan DC et al. (1993).Prospective analysis of patterns of weight change in stage IV human immunodeficiency virus infection. *The American Journal of Clinical Nutrition*, 58(3):417–424; Semba & Tang (1999), op. cit. 8.

[14] Gillespie & Kadiyala (2005), op. cit. 3; Piwoz E (2004). *Nutrition and HIV/AIDS: evidence, gaps and priority actions*. United States Agency for International Development; Friis (2006), op. cit. 5; Piwoz & Preble (2000), op. cit. 8.

[15] On the relationship between food insecurity and high-risk behaviour, see Weiser SD et al. (2007). Food insufficiency is associated with high-risk sexual behavior among women in Botswana and Swaziland. *PLoS Medicine*, 4(10):1589–1598. For more on women's engagement in transactional sex, see: Bryceson D, Fonseca J (2006). An enduring or dying peasantry? In: Gillespie S, ed. *AIDS, poverty and hunger*; Dunkle KL et al. (2004). Transactional sex among women in Soweto, South Africa: prevalence, risk factors and association with HIV infection. *Social Science & Medicine*, 59(8):1581–1592; Greig FE, Koopman C (2003). Multilevel analysis of women's empowerment and HIV prevention: quantitative survey. Results from a preliminary study in Botswana. *AIDS and Behavior*, 7(2):195–208.

[16] For more on mobility and migration, see: WFP (2006). *HIV/AIDS and transporters: putting the brakes on transmission*. June 2006; Singh S (2003). Food crisis and AIDS: the Indian perspective. Lancet, 362(9399):1938–1939; Sopheab H et al. (2006). HIV-related risk behaviors in Cambodia and effects of mobility. *Journal of Acquired Immune Deficiency Syndromes*, 41(1):81–86; Lagarde E et al. (2003). Mobility and the spread of human immunodeficiency virus into rural areas of West Africa. *International Journal of Epidemiology*, 32(5):744–752; Lurie MN et al. (2003). The impact of migration on HIV-1 transmission in South Africa: a study of migrant and nonmigrant men and their partners. *Sexually Transmitted Diseases*, 30(2):149–156; Zuma K et al. (2003). Risk factors for HIV infection among women in Carletonville, South Africa: migration, demography and sexually transmitted diseases. *International Journal of STD & AIDS*, 14(12):814–817.

[17] WFP (2006). *HIV/AIDS school feeding: children at risk*. June 2006.

[18] Studies on education and HIV risk include: Glynn JR et al. (2004). Does increased general schooling protect against HIV infection? A study in four African cities. *Tropical Medicine & International Health*, 9:4–14; de Walque D et al. (2005). Changing association between schooling levels and HIV-1 infection over 11 years in a rural population cohort in south-west Uganda. *Tropical Medicine & International Health*, 10:993–1001; World Bank study (2004) cited in WFP (2006), op. cit. 17.

[19] In some cases, this food insecurity is a consequence of HIV infection.

[20] For an updated review, see Greenblott K, Greenaway K (2006). OVC, *HIV, food security and nutrition: a look at where we stand*. For WFP and UNICEF. November 2006

[21] FAO Committee on World Food Security (2001). *The impact of HIV/AIDS on food security* (http://www.fao.org/docrep/meeting/003/y0310E.htm).

[22] For more on the relationship between property rights and women, see Strickland RS (2004). *To have and to hold: women's property and inheritance rights in the context of HIV/AIDS in sub-Saharan Africa*. June 2004. International Center for Research on Women (http://www.icrw.org/docs/2004_paper_haveandhold.pdf).

[23] Coon K et al. (2007). *Transcending boundaries to improve the food security of HIV-affected households in rural Uganda: a case study*. July 2007. New Horizons publication (http://www.popcouncil.org/pdfs/horizons/UgandaFoodSecurity.pdf); Pan American Health Organization (2000). Fact Sheet on Gender and Food Security; FAO Committee on World Food Security (2001), op. cit. 21.

[24] WFP (2006). *HIV/AIDS & care and treatment: food in the response to AIDS*. June 2006.

[25] Gillespie & Kadiyala (2005), op. cit. 3.

[26] WHO Consultation on Nutrition and HIV/AIDS in Africa. Durban, South Africa, 10–13 April 2005. *Participants' statement*.

Treatment

Food security and nutrition are fundamental to HIV treatment. There is emerging evidence that patients who begin antiretroviral therapy without adequate nutrition have lower survival rates.[27] Adequate dietary intake and absorption are essential for achieving the full benefits of the treatment.[28] Antiretroviral therapy itself may increase appetite and it is possible to reduce some side-effects and promote adherence to the therapy if some of the medicines are taken with food.[29]Given the importance of adherence in delaying viral resistance to first-line drugs, nutritional support becomes even more important in the longer run for sustaining antiretroviral treatment.

Care, support and impact mitigation

Malnutrition increases fatigue and decreases physical activity in people living with HIV[30] and erodes household livelihoods through a reduced ability to work and earn an income for food. In an agrarian economy, this also means reduced agricultural output due to decreased productivity, illness and death of agricultural workers, and a possible loss of farming knowledge transfer between generations. HIV infection results in changes in household assets, as families are faced with high care and medical cost burdens.

Home-based care provided by family or other volunteers is common for people living with HIV.[31] Improving food security by increasing production or providing food assistance can keep entire families food secure and help in the treatment of sick individuals. Keeping HIV-positive people active and productive also ensures that they can contribute both to the household income and to the wider community.[32] In rural households affected by HIV, in areas where agriculture is a major source of employment, ensuring intergenerational knowledge transfer and measures to sustain or improve agricultural productivity will be important for mitigation.

Vulnerability to and risk of HIV infection may increase when social stability is disrupted in humanitarian settings. Crises, especially those that are conflict-related, may lead to fragmentation of normal social structures and support mechanisms and increased food insecurity. These vulnerabilities and risks may also be heightened because HIV prevention services and other public services, including education, are interrupted. However, other factors may slow the spread of HIV in emergencies. These may be linked to a decrease in sexual networking because of limited mobility and accessibility, and a reduction in urbanization.[33,34]

Policy position

The 2001 United Nations General Assembly Special Session *Declaration of Commitment on HIV/AIDS* and the 2006 *Political Declaration on HIV/AIDS*, both of which were endorsed by all United Nations Member States, recognize that food security and nutrition are interlinked with HIV. Article 28 of the Political Declaration in particular resolves "to integrate food and nutritional support" in the response to HIV "with the goal that all people at all times, will have access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life, as part of a comprehensive response to HIV/AIDS".[35]

Governments have also unanimously endorsed separate Millennium Development Goals[36] related to food and HIV. The first Goal aims to reduce by half the proportion of people who suffer from hunger, while the sixth Goal aims to halt and begin to reverse the spread of HIV by 2015.[37] In places such as sub-Saharan Africa, one goal

[27] Paton et al. (2006), op. cit. 4: this study in Singapore concludes that patients starting antiretroviral therapy without adequate nutrition are six times more likely to more likely to die. Others argue that there is not yet enough evidence to draw conclusive statements—see: Friis (2006), op. cit. 5; Drain P et al. (2007). Micronutrients in HIV-positive persons receiving highly active antiretroviral therapy. *The American Journal of Clinical Nutrition*, 85:333 345.

[28] Op. cit. 26; Seume-Fosso et al. (2004), op. cit. 9; Castleman T, Seumo-Fosso E, Cogill B (2004). *Food and nutrition implications of antiretroviral therapy in resource limited settings*. Washington, DC, Food and Nutrition Technical Assistance Project. Academy for Educational Development. May 2004.

[29] Seume-Fosso et al. (2004), op. cit. 9; World Bank (2007), op. cit. 9.

[30] Piwoz & Preble (2000), p. ix, op. cit. 8.

[31] For a report on nutrition support and productivity before antiretroviral therapy and its positive effects on coping strategies, see *Catholic Relief Services SUCCESS palliative care nutritional supplementation targeted evaluation. Final report, May 2007*.

[32] Samuels F, Simon S (2006). *Food, nutrition and HIV: what next?* August 2006 (Overseas Development Institute briefing paper).

[33] WFP (2006). *HIV/AIDS & emergencies: compounding crises*. June 2006. It has been shown that HIV prevalence does not necessarily increase in complex emergencies to the same magnitude as in those countries in relative peace. A recent article by Spiegel et al. (2007) show that HIV prevalence is not higher and often lower among refugees than it is among the surrounding host populations. Spiegel P et al. (2007). Prevalence of HIV infection in conflict-affected and displaced people in seven sub-Saharan African countries: a systematic review. *Lancet*, 369:2187 2195.

[34] The Inter-Agency Standing Committee guidelines on HIV/AIDS in emergency settings make specific recommendations for appropriate responses in this context (see pp. 46–57 of the guidelines, http://data.unaids.org/Publications/External-Documents/IASC_Guidelines-Emergency-Settings_en.pdf). The committee was established in June 1992 in response to United Nations General Assembly Resolution 46/182 that called for strengthened coordination of humanitarian assistance. See also UNHCR, UNICEF, WFP (2004). Integration of HIV/AIDS activities with food and nutrition support in refugee settings: specific programme strategies. December 2004.

[35] Op. cit. 6.

[36] The eight Millennium Development Goals—which range from eradicating extreme poverty to halting the spread of HIV and providing universal primary education, all by the target date of 2015—form a blueprint agreed to by all the world's countries and all the world's leading development institutions (http://www.un.org/millenniumgoals/).

[37] These commitments build on the fundamental human rights enshrined in the 1948 *Universal Declaration of Human Rights* (Article 25) and expounded in the *International Covenant on Economic, Social and Cultural Rights* (1966), stressing "the right of everyone to … adequate food" and specifying "the fundamental right of everyone to be free from hunger". Article 12 recognizes the right of everyone to the enjoyment of "the highest attainable standard of physical and mental health".

cannot be reached independently of the other and will necessitate addressing HIV-specific issues surrounding food security and nutrition.

The Fifty-ninth World Health Assembly, consisting of health ministers of 192 countries, also passed a resolution in May 2006 requesting that countries include nutrition as an integral part of the overall response to HIV by identifying nutrition interventions for immediate integration into HIV programmes.[38,39]

UNAIDS, the World Food Programme and World Health Organization recommend that all actors, including governments, international agencies and civil society, support effective food security and nutrition interventions, as part of a comprehensive and multisectoral response to HIV. Specifically, UNAIDS, the World Food Programme and the World Health Organization recommend the following actions.

Actions for governments

- Use poverty reduction strategies, social protection policies and sector, district and local plans—including disaster preparedness plans—to sustain livelihoods and to integrate approaches to food security and nutrition with responses to HIV.
- Incorporate nutrition indicators into HIV monitoring and evaluation activities, including monitoring and evaluation of the national AIDS strategy. [40,41]
- Work across departments and sectors and with civil society and people living with HIV to reach the most vulnerable, ensuring that food and nutrition assistance is relevant, appropriate and does not fuel stigma and discrimination.
- Integrate HIV and food and nutrition programmes by, for example:
  - expanding nutritional support, including for pregnant and lactating women and children, emphasizing appropriate infant feeding as part of the prevention of mother-to-child transmission of HIV;
  - supporting adequate dietary and nutritional intake as a part of successful treatment programmes, including through provision of nutritional counselling and linking individuals to services.[42]
- Engage the private sector in developing local food fortification initiatives that generate income and in linking these initiatives to treatment interventions.
- Ensure agricultural policies and programmes are HIV responsive by, for example:
  - improving livelihood options in and around the community, thereby reducing the need to migrate;
  - integrating HIV information into agricultural extension programmes;
  - enabling affected households to participate in agricultural production and marketing by accommodating the need to be near home to care for sick relatives;
  - using cooperatives and farmers organizations as entry points for mitigation, care and support activities, such as establishing community health insurance funds or social funds to provide care and support to orphans and other children made vulnerable by AIDS.[43]

Actions for international partners

- Fund and support multisectoral HIV programming that incorporates effective food and nutrition interventions as a way of reducing vulnerability to HIV infection and increasing resilience to AIDS.
- Recognize and support (with technical assistance and funding) initiatives tailored to specific contexts such as school feeding,[44] home or communal gardens, cash transfers, income-generation activities,[45] and actions to increase agricultural production.

[38] Food and good nutrition are immediate and critical needs of people living with HIV. The Health Assembly also supported WHO to develop a five-year-plan to help achieve universal access to HIV/AIDS treatment by 2010. See WHA59.11 *Nutrition and HIV/AIDS* (http://www.who.int/gb/ebwha/pdf_files/WHA59/A59_R11-en.pdf).

[39] This built on a recommendation from the 2005 WHO Consultation on Nutrition and HIV/AIDS in Africa in Durban, South Africa, which reviewed existing evidence on nutrition and HIV and made recommendations to form the basis of future WHO policy.

[40] This should be in line with the "Three Ones" principles (one agreed AIDS action framework, one national AIDS coordinating authority and one agreed country-level monitoring and evaluation system). This may take the form of a Nutrition and HIV and AIDS unit, as in Malawi.

[41] As determined at the WHO Consultation on Nutrition and HIV/AIDS in Africa. Durban, South Africa, 10–13 April, 2005, incorporate nutrition indicators into HIV monitoring and evaluation plans.

[42] For more detailed guidance, see World Bank (2007), op. cit. 9.

[43] For more on agricultural policy adaption in HIV–related contexts, see Jayne TS et al. (2005). HIV/AIDS and the agricultural sector: implications for policy in eastern and southern Africa. *The Electronic Journal of Agricultural and Development Economics*, 2(2):158–181.

[44] WFP, (2006), op. cit. 17. School feeding has been used to attract and keep children in school, increase academic performance and support AIDS-affected families with take-home rations that also aim to address gender disparity in food insecurity-induced school drop-outs. This can increase household resilience in the long term by expanding economic opportunities through education.

[45] For specific examples in Uganda and Ethiopia, see http://www.worldbank.org/aids

- Support governments in programmes that incorporate nutrition and food and livelihood security in line with scale-up towards universal access to prevention, treatment, care and support by 2010.

Actions for civil society

- Advocate policies and programmes that incorporate nutrition and food security in line with scale-up towards universal access to prevention, treatment and care and support by 2010.
- Increase networking and information exchange about the interactions between HIV and food security and nutrition to promote an accurate understanding of how proper food and nutrition can reduce vulnerability to HIV infection and increase resilience to AIDS.[46]
- Work with the government and people living with HIV to reach the most vulnerable, assuring that assistance including food assistance is relevant to the needs and capacities of the beneficiaries and addresses issues of stigma and discrimination.

Best practice

Academic Model for the Prevention and Treatment of HIV (AMPATH)

In Kenya, as part of AMPATH—which started in 2002—nutrition support is being provided to patients determined by the programme criteria as lacking food security in 19 locations. By the beginning of 2008, an estimated 50 000 people living with HIV were to have been reached.[47] At any given site, an estimated 20–50% of people living with HIV are accessing food support through the HAART[48] and Harvest Initiative of AMPATH.

A review in 2006 found that patients enrolled in the nutrition supplement programme while taking antiretroviral therapy reported greater adherence to their medication, fewer food-related side-effects and a greater ability to satisfy increased appetites. The majority of patients experienced weight gain, recovered physical strength and were able to resume labour activities.[49]

Food is provided for individuals and their dependents for up to six months after the start of antiretroviral therapy. Patients unable to meet their food needs after this period can enter a weaning programme that provides food and training aimed at enhancing long-term food security.

Policy-makers' voices

Dr Praphan Phanuphak, Director, Thai Red Cross AIDS Research Centre

HIV infection can negatively impact food security and nutrition, which in turn affects disease progression and treatment outcomes. For two years I have been running HIV and nutrition interventions, and have witnessed first-hand how nutritional counselling and support helps many patients receiving antiretroviral treatment, including through reduced side-effects, increased treatment adherence and overall improved health and nutritional status.

As Co-Director of the Thai-Australian Collaboration in HIV Nutrition, a partnership between the Thai Red Cross AIDS Research Centre, the Albion Street Centre and the Institute of Nutrition, Mahidol University, I see the direct positive effects of nutrition counselling and education on the nurses, dieticians, adults and children in our programme. We counsel more than 300 patients living with HIV on nutrition. I urge countries to set aside a percentage of their ART budget for nutritional interventions, and provide patients with income to buy food for themselves and their families in the initial phase of treatment, when they may not be strong enough to resume work. Addressing stigma and discrimination will also help people with HIV to find and maintain employment, and thus be able to meet their own nutritional requirements.

[46] Requires familiarity with the existing resources listed here and notably the Standing Committee on Nutrition (http://www.unsystem.org/SCN/Default.asp).
[47] The number of people in the programme is growing by roughly 2000 per month (http://medicine.iupui.edu/kenya/hiv.aids.html).
[48] Highly active antiretroviral therapy.
[49] Byron E, Gillespie S, Nangamib M (2006). *Linking nutritional support with treatment of people living with HIV: lessons being learned in Kenya* (http://ifpri.org/renewal/pdf/brKenya.pdf); http://medicine.iupui.edu/kenya/hiv.aids.html

Policy-makers' voices

Dr Mary Shawa, Principal Secretary for Nutrition, HIV and AIDS, Office of the President and Cabinet, Malawi

Malnutrition, chronic food shortages and HIV are major problems in Malawi. Micronutrients studies in 2001 showed that 25% of adults were malnourished, with 75% of them being HIV-positive. Recognizing that HIV, poor nutrition and food security are major, interrelated, national challenges that are hindering human capital and economic development in Malawi, His Excellency Dr Bingu wa Mutharika, President of the Republic of Malawi, in 2004 committed himself to championing a solution by creating the Department of Nutrition, HIV and AIDS to provide policy direction, oversight, coordination and monitoring and evaluation of nutrition, HIV and AIDS national responses.

The Malawi Development and Growth Strategy: From Poverty to Prosperity 2006-2011, the overarching policy strategy for development in Malawi, identified the prevention and management of nutrition disorders, HIV and AIDS as one of the priority areas. Addressing the interaction between nutrition and HIV is key, and as the Strategy notes, the "Malawi Government is committed to improving and diversifying the diet of people living with HIV, and increasing the provision of HIV-related nutrition interventions".

One example is Malawi's antiretroviral therapy programme, in which more than 150 000 of the 175 000 people estimated in 2004 to be eligible for treatment are accessing free antiretroviral drugs. More than 60 000 of those in the programme are receiving nutrition support and more than 50 000 received fertilizer subsidies to assist with their own food production. Nutrition is not treatment for HIV, but is a very critical aspect for effective and efficient treatment.

Malawi is also planning to train 8000 community workers and 360 specialists in nutrition, HIV and dietetics, to sustain positive behaviour change and reinstate the successful Home Craft Worker Programme. The community workers will be responsible for door-to-door counselling and HIV testing, diagnosis of malnutrition, and follow-up to ensure adherence to antiretroviral therapy. At the same time, they will promote the production of and access to highly nutritious foods for a varied, diversified and nutritious diet.

UNAIDS
20 avenue Appia
CH-1211 Geneva 27
Switzerland
T (+41) 22 791 36 66
F (+41) 22 791 48 35
distribution@unaids.org
www.unaids.org