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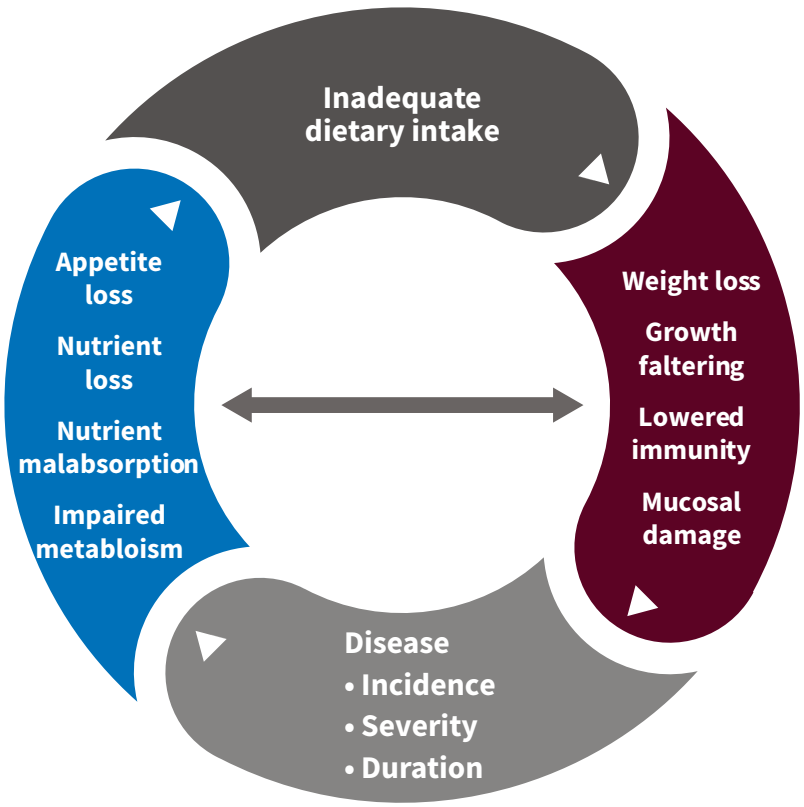
Combating the HIV Epidemic through Food and Nutrition

By the late 1990s, HIV was an unprecedented international health and development crisis. Since then, however, with intensive global and national efforts, the rates of new infections and acquired immune deficiency syndrome (AIDS)-related deaths have declined dramatically. About 1 million people died from AIDS-related causes in 2016, compared with almost 2 million in 2005; there were 2.1 million new infections in 2016, compared with 5.4 million in 1999.[3] Undernutrition has important clinical and economic repercussions for HIV, and USAID, at the forefront of global efforts to improve the nutritional status of vulnerable populations, met the relevant challenges of this new disease.

Specific to these challenges, poor nutrition among people with HIV is associated with adverse clinical outcomes, increased infections, hospitalization and mortality. HIV increases energy needs,[4] but at the same time reduces appetite, alters metabolic processes and impairs nutrient absorption. Undernutrition can hasten the progression of HIV, increase the risk of mortality (even with antiretroviral therapy, or ART) and reduce treatment effectiveness and adherence. In HIV-positive women, undernutrition has been associated with poor birth outcomes and increased mother-to-child transmission of HIV. Stunted growth, failure to thrive and frequent childhood illnesses are common in HIV-positive children, and even uninfected infants of HIV-positive mothers are at increased risk of mortality. In addition, food insecurity can lead to risky practices that increase vulnerability to HIV infection.

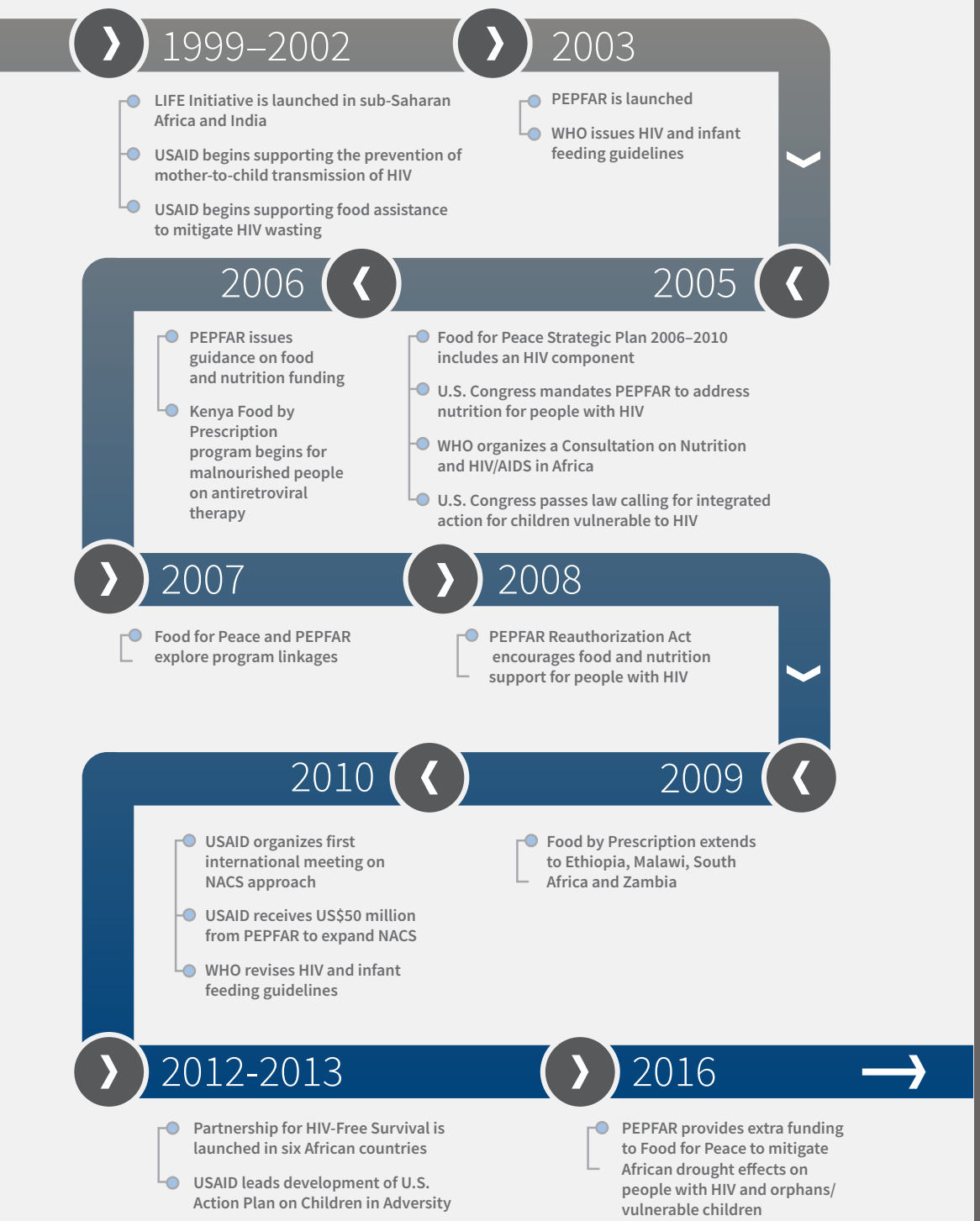
Since 2001, USAID has supported critical research on the importance of nutrition for people with HIV and dietary management of HIV-related symptoms, resulting in the first practical guidance on integrating nutrition into HIV prevention, care and treatment.[5] By 2003, USAID was supporting the development of country guidelines and training materials

The Cycle of HIV and Poor Nutrition



Source: USAID Food and Nutrition Technical Assistance (FANTA) III Project, "NACS: A User's Guide, Module 1, What Is NACS?", 2016.

Milestones in Nutrition and HIV



Key PEPFAR Global Results

- PEPFAR funding allowed significant increases in nutrition and HIV learning and programming.
- In 2017-2018, PEPFAR's response to the El Niño drought and famine in southern Africa resulted in more than 5 million people being screened for acute malnutrition through HIV services across five countries and 235,569 undernourished individuals receiving therapeutic or supplementary food.[1]

USAID Contributions to Global Results

- HIV activities and food aid were implemented by 41 Food for Peace programs in 20 countries.[2]
- The nutrition assessment, counseling and support (NACS) approach was implemented within the health systems of more than 20 countries.
- USAID provided key technical input and critical research that informed global guidance on infant feeding, nutrition for nursing mothers, and the prevention of mother to-child transmission of HIV.

on nutrition and HIV. Also in 2003, the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) was legislated by Congress, to be led and managed by the U.S. Department of State's Office of the U.S. Global AIDS Coordinator and Health Diplomacy and implemented by several U.S. Government agencies, including USAID and the Centers for Disease Control and Prevention (CDC). In 2004, World Health Assembly Resolution 57.14 called on member states to promote the integration of nutrition into a comprehensive response to HIV. As treatment became more available around 2004 through PEPFAR, USAID directed its attention to the formulation and provision of therapeutic and supplementary foods to treat acute malnutrition for people with HIV, and orphans and vulnerable children.

In 2005, WHO convened the first international conference on HIV and nutrition programming to review the latest scientific evidence and identify knowledge gaps.[6] The same year, the U.S. Congress mandated PEPFAR to work with USAID to "develop and implement a strategy… to address the nutritional requirements of those on antiretroviral therapy."[7] In response, PEPFAR's 2006 report to Congress on nutrition for people living with HIV committed to coordinating with USAID and other agencies to mount a consistent response to integrating nutrition into HIV care and treatment.

In 2008, USAID produced a compendium of promising practices in nutrition and HIV,[8] and in 2009 began to help national governments refine guidelines and training materials based on the latest WHO guidance. Substantial PEPFAR funding in 2010 allowed significant nutrition and HIV learning and programming, which was used to initiate and extend the integration of the nutrition assessment, counseling and support (NACS) approach into clinic and community services (described later in this chapter). Between 2012 and 2016, interagency and external collaboration created momentum that moved the nutrition and HIV learning agenda forward beyond PEPFAR. Many implementing partners served not only as technical resources for USAID, but as important voices in the global dialogue on nutrition, health and development.

Addressing Food Insecurity in HIV-Affected Populations

After WHO announced in 1999 that AIDS had become the number one killer in Africa,[9] the White House Office of National HIV/AIDS Policy funded USAID to provide food commodities to HIV-affected children and their families in sub-Saharan Africa and India, under Food for Peace and the Leadership and Investment in Fighting an Epidemic (LIFE) Initiative (1998–2009).[10] In addition, Food for Peace included HIV in its annual proposal guidelines for 2000 and its Strategic Plan 2006–2010, to prioritize and standardize treatment approaches for these vulnerable populations within Food for Peace programs. By the early 2000s, it was apparent that HIV was disrupting farming and other livelihoods, and people on ART identified food as their most urgent need in order to cope with increased appetites and side effects from the drugs. LIFE, which worked to mitigate these concerns, represented a significant turning point in USAID's HIV response.

> **"History will surely judge us harshly if we do not respond with all of the energy and resources that we can bring to bear in the fight against HIV/AIDS."**
>
> Nelson Mandela, late President of South Africa

When PEPFAR started in 2003, Food for Peace programs were encouraged to continue providing food and livelihood assistance to HIV-affected vulnerable families, while PEPFAR itself would provide therapeutic and supplementary food to AIDS patients with acute malnutrition, to HIV-positive pregnant and lactating women, and to orphans and vulnerable children born to HIV-positive parents.[11] This co-programming proved to be challenging: Food for Peace mainly targeted highly food-insecure rural communities, and provided food according to food insecurity criteria, whereas PEPFAR targeted individuals with HIV in the more urban and peri-urban areas where HIV prevalence was highest, according to anthropometric eligibility criteria. The 2007 Food for Peace and PEPFAR HIV and Food Security Conceptual Framework sought to address this challenge, for example, by encouraging Food for Peace programs to address food insecurity in urban areas,[12] but opportunities to directly link PEPFAR and Food for Peace food assistance have been limited.

In 2007, USAID contributed to a World Bank-led compilation of technical guidance on HIV, nutrition and food security,[13] as well as a comprehensive World Food Programme guide to food assistance programming in the context of HIV.[14] Recommended approaches included not targeting food assistance solely to people with HIV (to avoid stigma and resentment in food-insecure communities), using community-based targeting, and providing food assistance as part of a strategy to strengthen long-term livelihood security, all of which are followed within USAID's Food for Peace programs.

In 2008, the U.S. Congress passed a Reauthorization Act, which reiterated the importance of proper nutrition in treating HIV. The Act encouraged PEPFAR and USAID to provide food and nutrition support for people living with and those affected by HIV/AIDS, including children, and also encouraged sustainable, community-based programs in communities where both HIV/AIDS and food insecurity were highly prevalent.[15]

Preventing Mother-to-Child Transmission of HIV: Infant and Young Child Feeding

Increasing HIV prevalence in sub-Saharan Africa and the discovery in the 1980s that HIV could be transmitted through breastmilk caused alarm and confusion about how HIV-positive mothers should feed their infants, and

Mothers and their babies participate in a group meeting for HIV-positive pregnant and breast feeding women at a clinic in Chitungwiza, Zimbabwe.

Tsvangirayi Mukwazhi/ Organisation for Public Health Interventions and Development

also threatened to reverse the gains from USAID's history of breastfeeding support. Many countries advised HIV-positive mothers not to breastfeed to avoid the risk of mother-to-child transmission. However, multiple studies in sub-Saharan Africa showed that providing infant formula to reduce mother-to-child transmission of HIV actually increased the overall rate of infant mortality, due to the loss of nutritional and antibody protections from breastmilk, and the additional challenges of a sustained supply and hygienic preparation of formula.

USAID played a pivotal global role in responding to infant feeding challenges in the context of HIV. In the 1990s, the Agency provided technical input into numerous international consultations on HIV and infant feeding, and supported critical research[16] that informed global guidance on the prevention of mother-to-child transmission of HIV. Studies under the Zimbabwe Vitamin A for Mothers and Babies trial (1997–2000) and the Breastfeeding, Antiretroviral and Nutrition study in Malawi yielded rich evidence on the associations among infant feeding practices, HIV transmission and mortality. Key findings were that mixed feeding (feeding formula or other food in addition to breastmilk) put infants at higher risk of HIV infection than exclusive breastfeeding during the first 6 months of life, and that better-nourished mothers were less likely to transmit HIV to their infants.[17]

Subsequent studies found that for HIV-infected mothers who were adherent to antiretroviral therapy and were virally suppressed, the risk of mother-to-child transmission through breastfeeding was less than 1 to 2 percent;

> **"USAID in southern Africa has been one of the strongest partners in protecting breastfeeding, and what it learned in the HIV world has also had a ripple effect in the non-HIV world."**
>
> Nigel Rollins, M.D., Department of Maternal, Newborn, Child, and Adolescent Health, WHO20

in 2010, WHO began recommending that these mothers exclusively breastfeed their infants during the first 6 months, and in a 2016 update, that they continue to breastfeed for up to 2 years or beyond, as is advised for uninfected mothers.[18]

For a community without access to safe breastmilk substitutes, USAID supported the Ndola Demonstration Project in Zambia (1999-2005) to develop and test a model program to prevent mother-to-child transmission of HIV that integrated infant feeding counseling, voluntary HIV counseling and testing, and antiretroviral prophylaxes into health facility and community services. The results showed that increasing mothers' knowledge that HIV may be transmitted through breastmilk did not erode good breastfeeding practices. USAID continued to invest in reducing the risk of mother-to-child transmission in Zambia and other countries. The NuLife Project in Uganda[19] (2008-2011) provided an opportunity to develop both infant and young child feeding materials and a model for local, private-sector production of ready-to-use therapeutic food for HIV-affected adults and children with severe acute malnutrition.

USAID also contributed to the development of tools for the UNICEF Community Infant and Young Child Feeding Counselling Package[21] and other materials that included updated information on infant feeding in the context of HIV. At the country level, USAID provided technical assistance to governments, health care providers and mothers to clarify the complex issue of breastfeeding and HIV.

Through the gradual adoption of the 2010 WHO Guidelines on HIV and Infant Feeding, many countries worked to ensure that mothers and infants received antiretroviral drugs during pregnancy and the postpartum period. The 2011 launch of the Joint U.N. Programme on HIV/AIDS, "Global Plan towards the Elimination of New Infections among Children by 2015 and Keeping Their Mothers Alive," presented a new opportunity for USAID to strengthen health systems to prevent undernutrition and mother-to-child transmission of HIV during the first 2 years of life.

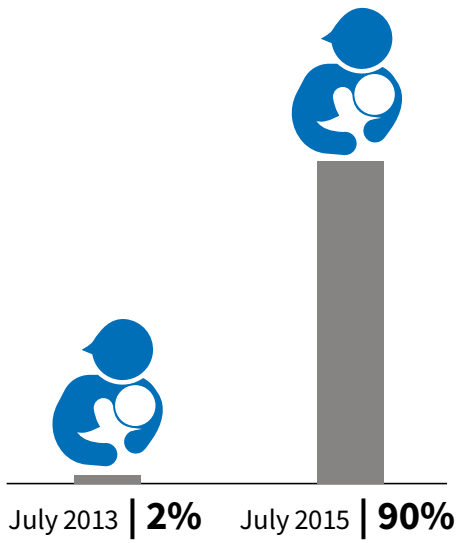
In 2013, USAID, together with WHO, UNICEF and PEPFAR, initiated the Partnership for HIV-Free Survival. In six countries with a high incidence of mother-to-child transmission—Kenya, Lesotho, Mozambique, South Africa, Tanzania and Uganda[22]—USAID implementing partners provided technical support to improve the implementation of the 2010 WHO guidelines[23] by integrating services for nutrition, maternal, newborn and child health, and the prevention of mother-to-child transmission, in order to accelerate a reduced HIV infection and mortality rate among HIV-exposed infants.

Through the Partnership, clinic staff teams met regularly to select and test areas of their work and service delivery changes for quality improvement, with the goal of increasing ART adherence, the retention of mother-infant pairs in care and optimal infant feeding. The results convinced the respective ministries of health of the efficacy of robust and systematic efforts to improve the quality of health care and services in facilities and communities. In Uganda, for example, these quality improvement efforts led to teams including counseling about infant and young child feeding in the monthly standard package of care for mother-infant pairs, and peer mentors providing counseling and breastfeeding support. These improvements increased the percentage of mother-infant pairs retained in care dramatically, from just 2.2 percent to over 90 percent, and the percentage of mothers of HIV-exposed infants who adhered to recommended feeding practices from 70 to almost 100 percent over a 2-year period.[24]

Treating Acute Malnutrition in AIDS Patients: Food by Prescription

In Africa in the 1980s, HIV was known as "slim disease" because of the weight loss that defined AIDS.[25] USAID first began supporting the dietary management of wasting and opportunistic infections associated with HIV in 2004 in Uganda through the Regional Center for Quality of Health Care, which aimed to improve the quality of health care in east, central and southern Africa. USAID later drew on its expertise in integrated delivery of health and nutrition services to pilot an approach called Food by Prescription. The provision of Food by Prescription began first in Kenya in 2005; trained health care providers in PEPFAR-supported clinics prescribed locally produced, fortified-blended food to malnourished patients according to strict anthropometric eligibility criteria. Pharmacies dispensed the food to HIV patients to improve individual clinical outcomes, while household food insecurity was tackled through separate cross-cutting mechanisms,

Two-Year Increase in Percentage of Mother-Baby Paris Receiving Standard Package of Care Monthly in Uganda*

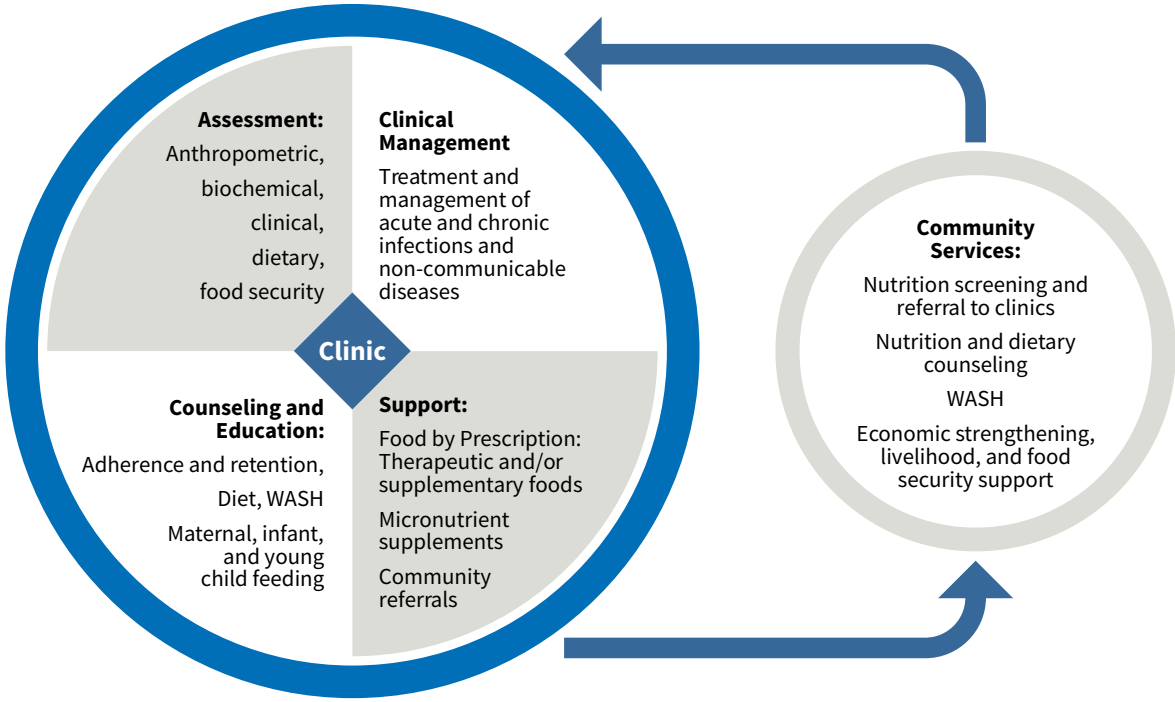


**across 22 sites supported by the Uganda Partnership for HIV-Free Survival*

Source: USAID Applying Science to Strengthen and Improve Systems (ASSIST) Project, 2017

Nutrition Assessment, Counseling and Support

A Systems Approach to Integrating Nutrition in Clinic and Community Health Services



Source: USAID 2018

such as Food for Peace or World Food Programme food assistance. The Kenya experience—and findings from elsewhere that specialized food products improved weight gain and antiretroviral tolerance—signaled the benefits of improved nutrition in HIV care and treatment, and also attracted the attention of agencies such as the Global Fund to Fight AIDS, Tuberculosis and Malaria and the World Food Programme, as well as multiple country governments, food processors, researchers and implementers.

A 2008 review of Food by Prescription in Kenya found that a majority of the enrolled patients gained weight during the first three months of their treatment. However, 56 percent of pre-ART patients and 39 percent of ART patients left the program early and were lost to follow-up. The review recommended greater efforts to track those who were lost to follow-up, minimize stigma and integrate Food by Prescription into routine service delivery.[26] Another assessment found the program to be "an excellent intervention, well-appreciated by patients and providers alike in terms of improving nutritional status and health outcomes and supporting adherence to and efficacy of ART," but also recommended strengthening government ownership and instituting a quality improvement approach.[27] USAID also recommended additional services to improve treatment outcomes through economic strengthening and livelihood promotion, water and sanitation, social protection, legal and advocacy services, family planning and malaria prevention.

USAID supported related research throughout the 2000s to inform Food by Prescription programming, including developing and testing the efficacy of therapeutic and supplementary foods for people with HIV. A USAID-commissioned study of the Food by Prescription program in Ethiopia confirmed that supplementary food had long-lasting, positive effects on health and nutritional status.[28]

As efforts moved forward, different Food by Prescription programs used different food products and ration sizes; some were imported at substantial expense outside of government systems, and others were produced locally with USAID funding (e.g., ready-to-use therapeutic food produced by a Ugandan manufacturer from peanuts grown by local farmers[29]). In all countries, inventory control and supply chain management were, and continue to be, challenging. While nutrition was already an integral part of the health care system in Kenya, with its critical mass of trained nutritionists, most other African countries had few nutritionists except at policy levels. Management of acute malnutrition also demanded follow-up that was difficult to implement without strong community linkages and support.

A USAID-trained peer group educator in Mozambique demonstrates how to deliver an in-home health behavior change lesson. These lessons included promoting HIV prevention, family planning, nutrition, hygiene and sanitation, and the importance of counseling and testing for HIV.

Sarah Day Smith / PEPFAR

Strengthening Health Systems through Nutrition Assessment, Counseling and Support

With the expansion of Food by Prescription programming, concern arose that the almost singular focus on specialized food and treatment of acute malnutrition limited attention that was needed for counseling patients on how to prevent undernutrition, maintain improved nutritional status with antiretroviral therapy, and manage HIV as a chronic disease. In this context, USAID designed the NACS approach. NACS is neither a program nor a methodology, but a patient-centered approach to operationalize nutrition policy and guidance, and to make nutrition integral to clinical health and community services. Under the NACS approach, specialized food products were only one part of the "S" (support) component, and were accompanied by clinic-community referrals for screening, follow-up, and links to community services. NACS facilitated the coordinated action of multiple U.S. Government and international partners, and since 2010 has been considered an essential standard of care by USAID. The World Food Programme has also endorsed the approach and developed NACS guidance for adults and adolescents with HIV.[30]

In 2010, USAID organized the first international meeting on NACS, bringing together participants from 18 countries in Africa and Asia to discuss issues such as specialized food product procurement and supply chain management; referrals between health facilities and community services; monitoring and reporting.[31] Two years later, the CORE Group, a nonprofit group of over 70 member organizations and networking partners, organized a pivotal meeting in Washington, D.C. to move NACS forward, with participants from the U.S. Government, United Nations, implementing partners and technical assistance agencies.[32] Building on experiences with Food by Prescription, more than 20 countries have successfully embraced and introduced the NACS systems approach within national health services.

Experience shows that food security and economic strengthening linked with HIV treatment improve the health and nutrition outcomes of people living with HIV and the well-being of households, as well as enhance household food security for orphans and vulnerable children.[33] USAID helped to establish regular clinic-to-community linkages to economic strengthening and livelihood services in order to support household food security, resilience, retention in clinical care and adherence to ART. Implementing partners assisted ministries of health with developing national guidelines, training materials and job aids to build capacity for quality clinic and community NACS service delivery. They also helped design guidance to strengthen referrals and promote economic resilience.

USAID employed social and behavior change strategies, and developed state-of-the art communication tools to promote optimal nutrition. Collecting information on local dietary practices and health-seeking

A nurse assesses a child for malnutrition during a mother-baby visit at the comprehensive care center for HIV services in the Msambweni County Referral Hospital, Kenya.

Irene Angwenyi/ USAID Kenya

behaviors helped in the design of counseling and education for improved nutrition and ART adherence for people with HIV.

NACS-related experiences in different countries generated valuable lessons for nutrition and other development programming.[34] For example, in five countries, health facility teams tested changes in service delivery to ensure that every patient received an assessment and classification of nutritional status on each visit. Once the extent of patient malnutrition was known, the teams moved on to manage malnutrition treatment and retain patients in nutrition and antiretroviral therapy care. The process achieved impressive increases in nutrition assessment, counseling and referrals, as well as in retention in care and ART adherence; there were also decreases in rates of defaulting from treatment.

While conceived in the context of HIV, NACS can help improve care, identify referral pathways, establish protocols, streamline patient flow and strengthen data management within comprehensive health care.[35] For example, Malawi, the first country to scale up Food by Prescription nationally, provides nutrition interventions for adolescents and adults with various illnesses through its national Nutrition Care, Support and Treatment program. In Kenya, NACS complements other USAID-supported interventions to improve food security under the Feed the Future initiative. In all cases, USAID has enhanced the environment for NACS through institutional and health care provider capacity building, infrastructure support, partnerships and synergies. Learning how to provide NACS to people living with HIV, who are often a distinctly different target group than the mothers and young children served by the rest of USAID nutrition programming, is a major USAID achievement.

The Future of Nutrition and HIV Programming

By 2010, HIV had become a chronic yet manageable disease, due in large part to the exponential increase in access to antiretroviral therapy made possible by PEPFAR and the Global Fund to Fight AIDS, Tuberculosis, and Malaria working with governments and civil society. Still, existing challenges remain, and new ones have arisen. Reductions in new infections have moderated in recent years, and access to ART is still limited in many low-income countries. While HIV-related stigma has decreased, many people still seek ART services at sites far from their homes to avoid being recognized and identified as HIV-positive. This makes it difficult to maintain and track adherence, viral suppression and nutritional status. More HIV-exposed, uninfected infants are surviving, but they may have a higher risk of mortality than non-exposed infants, possibly related to poor maternal health status and care practices.[36] The long-term effects of HIV and ART on child development and growth are not fully understood. Extended lifespans with ART will be accompanied by a rise in noncommunicable diseases, such as arteriosclerosis, hypertension, stroke and diabetes. These diseases will require expensive and complex medical treatment in fragile health systems, but they can be mitigated through dietary management. Conflicts, displacements and food insecurity will disrupt HIV treatment, increase vulnerability to infection, and limit patient access to health care and nutritious food. Support for pre-service and in-service nutrition training for health providers, including the quality improvement approach, is critical not only to maintain and expand services to prevent and manage undernutrition in people with HIV, but to position nutrition assessment as part of monitoring patients' clinical vital signs. USAID has unique experience, expertise and global influence to address these new demands, but the increased focus on HIV treatment has translated into a decline in resources for other aspects of care and support, including a major shift away from nutrition support in PEPFAR programming. Among the objectives of USAID's Multi-Sectoral Nutrition Strategy 2014-2025, which guides the Agency's actions on nutrition, are creating an enabling environment to meet the nutritional needs of people with HIV, and demonstrating the contribution of nutrition to achieving the Joint U.N. Programme on HIV/AIDS "90:90:90" treatment goals to help end the AIDS epidemic.[1] This will require commitments by countries and partners to ensure that expertise and resources are utilized effectively and sustainably into the future.