

Homestead food production improved access to quality food, consumption and livelihood and reduced stigma among households of People Living with HIV/AIDS in Battambang Province of Cambodia



Helen Keller International (HKI) conducted an Enhanced-Homestead Food Production (E-HFP) project in Thmorkol District of Battambang Province, a district with a high prevalence of HIV/AIDS among women and children. Comparison of baseline and endline data indicates that a greater proportion of households with people living with HIV/AIDS (PLWHA) participated in homestead food production by the project's end and that these households also experienced an increase in income generated from the sale of foods produced at the household level. Consumption of micronutrient-rich foods increased among PLWHA-households and PLWHA specifically, the people who are affected by HIV/AIDS. Data also indicates a reduction in discriminatory attitudes towards PLWHA among both PLWHA and non-PLWHA households. Through this combination of increased food production, income-generation, dietary intake and social acceptance of HIV/AIDS, HKI's E-HFP project contributes to improving the livelihoods, nutritional status and well-being of households vulnerable to food insecurity and discrimination. This project was funded by MACAIDS Foundation.

Introduction

The first case of HIV/AIDS in Cambodia was detected in 1991 and over several decades the country has made a determined effort to address the spread of HIV/AIDS infection at a national level. The prevalence rate of HIV/AIDS in Cambodia has fallen from 2.0% in 1998, to 1.2% in 2001, and to 0.5% in 2009, making it one of the few countries to reach Millennium Development Goal (MDG) 6 of halting and reversing the spread of HIV/AIDS.¹ As part of this success, availability and access to antiretroviral (ARV) drugs among persons living with HIV/AIDS (PLWHA) has also improved; the total number of reported sites providing ARV therapy increased from 32 in 2005 to 48 in 2007, and the proportion of ARV coverage among PLWHA increased from 14% in 2004 to 67% in 2007.²

Despite the nation's success in reducing transmission and improving access to care among PLWHA, ensuring adequate dietary intake and nutritional status among PLWHA is vital to the successful treatment, well-being, and health of PLWHA. There is a strong link between micronutrients and immune function; several studies have shown that reduced intake of micronutrients can be associated with increased risk of child mortality, transmission, and progression of HIV.^{3,4,5} The World Health Organization (WHO) states that HIV/AIDS can affect a

person's nutritional status by reducing their food intake and absorption, while also increasing their energy requirements; therefore, improved nutritional status among PLWHA can assist in reducing the risk of infection, increase energy for a productive life, and aid in maintaining a healthy BMI.⁶ In March 2004, Helen Keller International (HKI) conducted qualitative research on the effects HIV/AIDS has on household food security and dietary practices. Preliminary analysis of the findings suggests that the HIV/AIDS illness limits Cambodian families' ability to produce and acquire diverse, quality foods⁷.

Additionally, challenges remain in addressing the social stigma and discrimination associated with HIV/AIDS. The 2010 Demographic Health Survey found that though 83% of women and 92% of men would be willing to care for a family member with HIV/AIDS, only 56% of women and 48% of men would want this family member to be publicly open about their HIV status.⁸ The same data indicates that only 79% of women and 82% of men would continue to purchase fresh food from a vendor infected with HIV/AIDS. Stigma surrounding HIV/AIDS prevents open discussion of the disease and can result in social isolation of PLWHA, discourage voluntary testing, and prevent adequate treatment, thereby reducing the quality of life and health status of PLWHA and potentially increasing the spread of HIV/AIDS.

¹ USAID. Cambodia HIV/AIDS Country Profile. December, 2010.

www.usaid.gov/our_work/global_health/aids/Countries/asia/cambodia_profile.pdf

² UNAID/WHO. Working Group on Global HIV/AIDS and STI Surveillance.

Epidemiological Fact Sheet on HIV and AIDS: Core data on epidemiology and response, Cambodia 2008.

³ Fawzi WW et al. A randomized trial of vitamin A supplements in relation to mortality among HIV infected and uninfected children in Tanzania. *Pediatric Infectious Disease Journal*, 1999, **18**:127-133.

⁴ Semba RD et al. Maternal vitamin A deficiency and mother-to-child transmission of HIV-1. *Lancet*, 1994, **343**:1593-1597.

⁵ Tang AM et al. Low serum vitamin B-12 concentrations are associated with faster human immunodeficiency virus type 1 (HIV-1) disease progression. *Journal of Nutrition*, 1997, **127**:345-351.

⁶ World Health Organization. Nutritional care and support for people living with HIV/AIDS: a training course. 2009.

⁷ Johnston R and Lang MM. Formative Research on Food Security and Nutrition among People Living with HIV/AIDS in Banteay Mean Chey Province, Cambodia. Phnom Penh: Helen Keller International/ Cambodia. 2005.

⁸ National Institute of Statistics, Directorate General for Health, and ICF Macro, 2011. *Cambodia Demographic and Health Survey 2010*. Phnom Penh, Cambodia and Calverton, Maryland, USA: National Institute of Statistics, Directorate General for Health, and ICF Macro.

Jonathon Mann, past director of the WHO Global Programme on AIDS, stated that the stigma and discrimination surrounding HIV/AIDS is “as central to the global AIDS challenge as the disease itself.”⁹

In an effort to both improve nutritional status and reduce stigma and discrimination for PLWHA, Helen Keller International (HKI), with generous support from MACAIDS Foundation and in close collaboration with the local NGO Rural Development Association (RDA), supported an Enhanced Homestead Food Production (E-HFP) project in 14 villages of Thmorkol District of Battambang Province. The HIV prevalence rate in Battambang Province is 0.8%, higher than the national prevalence rate.¹⁰ Findings from previous HKI E-HFP projects show that increased availability and access to micronutrient-rich foods is associated with increased consumption of diverse, micronutrient-rich foods. Food consumption and dietary quality are further increased when household-produced foods are sold and income is used to purchase additional high-quality foods.

Description of the program

Helen Keller International has been supporting E-HFP to promote the production and consumption of micronutrient-rich foods since 1998. The program has demonstrated that with minimal technical support, households can be encouraged to produce varieties of vegetables, fruits, poultry and eggs throughout the year, which not only has an impact on improved nutritional status, but also improves food security and contributes to poverty alleviation.

The E-HFP project in Thmorkol District of Battambang Province supported 1,000 poor households, including PLWHA, in homestead production of vegetables, fruits and poultry, enabling families to increase their nutrient intake through increased dietary diversity. In addition, participating households received nutrition education to promote optimal infant and young child feeding practices and optimal maternal nutrition. The project also worked to reduce stigma related to HIV/AIDS through community discussion groups among PLWHA, conducted on topics related to discrimination and social stigma.

Project activities focused on capacity development of Rural Development Association (RDA) staff, Village Model Farms (VMFs), Village Health Volunteers (VHVs), Commune Councils and community members to establish a sustainable system for producing and delivering agricultural inputs in order to enhance agricultural production, consumption and income at the village level. This was done through the establishment of 28 VMFs that served as demonstration sites for agricultural training and as a source of some agricultural inputs and technical information for the 1,000-targeted households in 14 villages (i.e. two VMFs per village). The VMF owner was responsible for producing seeds, seedlings and saplings and for breeding small livestock, such as chickens and ducks. Attached to each VMF, a woman’s group and PLWHA group were established through which training and support were channeled to enable them to set up year-round household production of nutritious plant and animal-source foods with a diversity of crops and other foods. The intervention operated over 24 months.

Methodology

To evaluate the impact of this E-HFP project among 28 villages across Thmorkol District (14 intervention villages and 14 control villages), participant information was collected at both the project’s beginning and completion; baseline data was collected in August 2009 and endline data was collected in July 2011. Comparison of this data provides indication of changes in homestead food production and consumption and income-generation, as well as in attitudes and knowledge regarding HIV/AIDS, among project participants over the course of the 24-month project. This nutrition bulletin highlights a comparison of baseline and endline data among intervention households that had a family member living with HIV/AIDS.

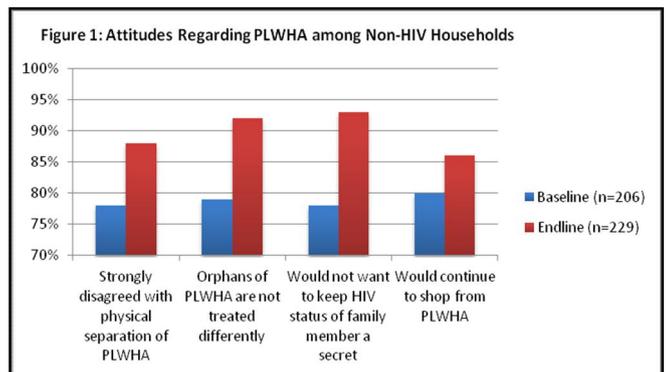
Both baseline and endline surveys utilized a cross-sectional design and collected information on food production/availability, food consumption and nutritional status of PLWHA, as well as information regarding stigma and discrimination towards PLWHA. The baseline survey was administered among 300 randomly sampled intervention households, selected through multi-stage cluster sampling from 1,000 total households in 14 intervention villages. This study sample included both non-PLWHA and PLWHA households. Selection criteria for non-PLWHA households required the presence of at least one child aged less than five years. PLWHA households were given priority for inclusion in the study, regardless of this selection criterion. Each PLWHA-household contained at least one family member who was infected with HIV/AIDS; in some cases PLWHA-households contained more than one person living with HIV/AIDS. At baseline the study included 91 PLWHA-households, comprising 88 PLWHA, and at endline the study included 71 PLWHA-households, comprising 78 PLWHA.

A team consisting of 12 enumerators assisted HKI with data collection. Each received extensive training from HKI on the E-HFP program, the survey objectives and methodology, anthropometric measurements, hemoglobin measurement, and field practices. The questionnaire used for both baseline and endline was prepared in English and was then reviewed and finalized by the team. The final English questionnaire was translated into Khmer, back translated, and then pre-tested in the field by the interview team. Feedback from field pre-testing was incorporated into the final questionnaire. The data collected from both baseline and endline were analyzed using SPSS 11.5.

Results

Stigma among non-PLWHA households

Among households that had no PLWHA in their family (n=209 at baseline; n=229 at endline), comparison of baseline and endline data indicates improved attitudes towards PLWHA and reduced stigma regarding HIV/AIDS, as shown in **Figure 1**. Among those households that had heard of HIV/AIDS (n=206 at baseline; n=229 at endline), those who strongly disagreed with the statement that PLWHA should be physically separated to protect the health of others increased from 78% to 88%, those who felt that orphans of PLWHA are not treated differently increased from 79% to 92%, and those who would not want to keep the HIV status of an infected family member secret increased from 78% to 93%. Additionally, those who would continue to shop from a vendor they discovered had HIV/AIDS also increased from 80% at baseline to 86% at endline. This last change in attitude shows an increase beyond the national average indicated in the 2010 DHS, where 79% of women and 82% of men stated they would continue purchasing from the vendor.¹¹



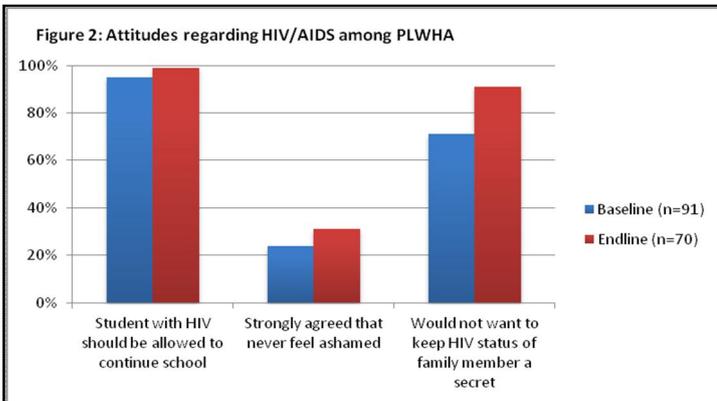
⁹ Mann, J. Statement at an informal briefing on AIDS to the 42nd Session of the United Nations General Assembly, 20 October, New York, 1987.

¹⁰ National Institute of Statistics, Directorate General for Health, and ICF Macro, 2011. *Cambodia Demographic and Health Survey 2010*. Phnom Penh, Cambodia and Calverton, Maryland, USA: National Institute of Statistics, Directorate General for Health, and ICF Macro.

¹¹ National Institute of Statistics, Directorate General for Health, and ICF Macro, 2011. *Cambodia Demographic and Health Survey 2010*. Phnom Penh, Cambodia and Calverton, Maryland, USA: National Institute of Statistics, Directorate General for Health, and ICF Macro.

Stigma among PLWHA

Among intervention households with a family member with HIV/AIDS who responded to stigma-related questions (n=91 at baseline; n=70 at endline), comparison of baseline and endline data indicates that social acceptance of other PLWHA and openness regarding their own HIV/AIDS status increased, as shown in **Figure 2**. Respondents living with HIV/AIDS who agreed that HIV-positive students should be allowed to continue attending school increased from 95% to 99%, those who strongly agreed that they never feel ashamed of having HIV increased from 24% to 31%, those who would not want a family member who contracted HIV to keep it secret increased from 71% to 91%, and those who strongly disagreed that they work hard to keep their own HIV secret increased from 90% to 96%. However, in contrast, some negative attitudes regarding their own HIV/AIDS status increased as well. Those who reported feeling guilty because they have HIV increased from 23% to 34%, and those who felt they are not as good a person as others because they have HIV also increased from 9% to 19%.



Food production among households with PLWHA

Among households with PLWHA, comparison of baseline and endline data indicates increases in the variety of fruits and vegetables produced by households, and also the proportion of households engaged in fruit, vegetable and poultry production, as shown in **Tables 1 and 2**. The proportion of PLWHA-households engaged in home gardening increased from 24.2% to 88.7%, and the proportion of those producing fruits increased from 20.9% at baseline to 85.9% at endline. Among these PLWHA-households engaged in home gardening, the median number of types of vegetables currently being grown increased from 3 types at baseline (n=22) to 6 types at endline (n=63), and the median number of types of fruits currently being grown also increased from 3 types at baseline (n=19) to 5 types at endline (n=61). Additionally, the proportion of PLWHA-households engaged in poultry production in the last two months increased from 47.3% at baseline to 57.7% at endline.

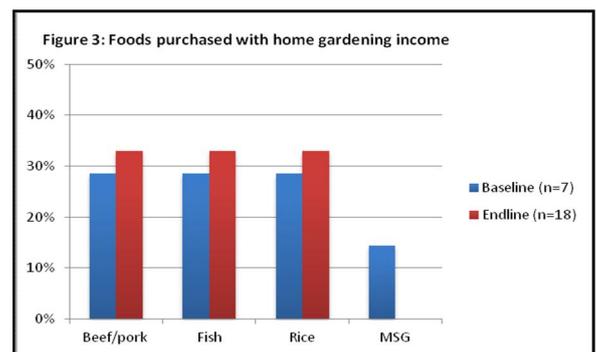
	Baseline (n=91)	Endline (n=71)
% of PLWHA-households with home garden	24.2%	88.7%
% of PLWHA-households growing fruits	20.9%	85.9%

	Baseline	Endline
Median number of vegetable types currently in garden	3	6
Median number of fruit types currently growing	3	5

Income-generation and livelihoods among households with PLWHA

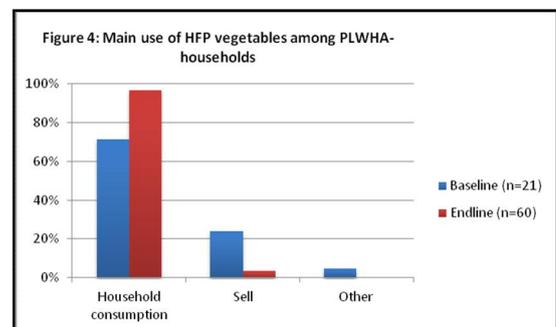
Comparison of baseline and endline data shows an increase in income generated from the homestead food production activities among PLWHA-households. At baseline, 7.7% of all 91 PLWHA-households reported earning income from home gardening, with a median income of 50,000 riel (USD \$12.50) over the last two months before the survey. At endline, 28.2% of all 71 PLWHA-households reported earning income from home gardening, with a median income of 80,000 riel (USD \$20.00) over the last two months. Additionally, income-generated from animal husbandry increased. Among those PLWHA-households earning income from poultry products, the median income over the last two months from poultry sales increased from 72,500 riel (USD \$18.13) at baseline (n=55) to 86,500 riel (USD \$21.63) at endline (n=48).

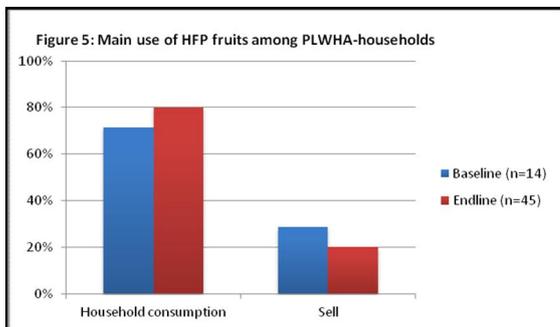
Changes in spending and purchasing power among PLWHA-households were also indicated. Among respondents who reported earning income in the last two months from home gardening, 100% used this income mostly on food at baseline (n=7), while at endline 90% used this income mostly on food and 10% used their income mostly on education (n=20). In the context of increased income-generation, these changes in spending may indicate that with increased purchasing power, families could extend their expenditure to invest in household well-being, including education. Among those who spent income from home-gardening on food, changes were also shown in which foods respondents chose to purchase, as seen in **Figure 3**. At baseline, 28.6% used E-HFP income to mainly purchase beef/pork, 28.6% fish, 28.6% rice, and 14.3% monosodium glutamate (MSG). At endline, food purchases using E-HFP income were evenly split among beef/pork, fish and rice, with no household purchasing MSG. This change may indicate increased purchasing power among these households, as greater proportions of households purchased higher-cost items like meat. Furthermore, this change in household expenditure could indicate changes in dietary choices due in part to nutrition education received as part of the E-HFP project.



Food consumption among households with PLWHA

Compared to baseline, endline data shows increases in the proportion of homestead-produced foods consumed at the household level, including fruits, vegetables and poultry products, as shown in **Figures 4 and 5**. Of those PLWHA-households with homestead gardens, the proportion that reported household consumption as the main use of vegetables produced from the home gardens increased from 71.4% to 96.7%, and those reporting household consumption as the main use of fruits also increased from 71.4% to 80.0%.





Overall consumption of foods rich in micronutrients increased among PLWHA-households over the course of the project's duration. Comparison of baseline and endline data shows an increase in the consumption of yellow/orange fruits and vegetables, rich in vitamin A, among PLWHA-households. Among those consuming yellow/orange vegetables from their home garden, median consumption increased from 0.5kg at baseline (n=1) to 1kg at endline (n=7). Among those consuming yellow/orange fruits produced from their home garden, median consumption increased from 1.5kg at baseline (n=4) to 3kg at endline (n=10).

The median number of eggs cooked in the last week among all households also increased from 3 eggs at baseline to 6 eggs at endline as shown in **Table 3**. The proportion of all households that had consumed liver in the last week increased from 26.4% at baseline to 47.9% at endline. Among households that had cooked eggs in the last week, the median number of eggs cooked specifically for a household member living with HIV/AIDS also increased from 2 eggs per week (n=52) to 4 eggs (n=48). This data is also supported by increases in the frequency of egg and liver consumption reported directly by PLWHA. The median number of days eggs were consumed by a family member living with HIV/AIDS increased from 1 day a week (n=88) to 2 days a week (n=78), and the median number of days liver was consumed by a family member living with HIV/AIDS increased from 0 days a week to 1 day a week.

Table 3: Median number of eggs cooked for PLWHA

	Median number of eggs cooked for family member including people affected with HIV/AIDS
Baseline (n=52)	3
Endline (n=48)	6

Conclusion

Review of findings from the comparison of baseline and endline data indicate that PLWHA-households participating in Helen Keller International's E-HFP project in Battambang Province experienced an increase in food production and consumption of certain micronutrient-rich foods, and income-generation, which can enable these beneficiaries to improve their food and nutrition security at the household level. An increase in the number of households engaging in homestead food production was coupled with an increase in the amount of money households brought in from the sale of fruits, vegetables and poultry products. As income increased, household spending expanded to include expenditure on education, and food purchases expanded to include more nutritious, higher-cost foods, such as meat. Additionally, PLWHA-households' diets evolved to include a greater quantity and higher frequency consumption of micronutrient-rich foods, including orange-fleshed fruits and vegetables, liver, and eggs. This improvement in diet and livelihood among vulnerable households, such as those with PLWHA, can contribute to improved nutritional status and poverty reduction, which is vital to the health and well-being of family members living with HIV/AIDS.

Additionally, both PLWHA and non-PLWHA households saw a reduction in some negative attitudes and stigma surrounding HIV/AIDS. Increases in attitudes of social acceptance towards PLWHA and reduced reported discrimination among non-PLWHA households indicate a potential reduction of HIV/AIDS stigma in these communities. Additionally, among the PLWHA interviewed, respondents reported improved attitudes regarding openness of their HIV/AIDS status, which may serve as supportive evidence of a reduction in stigma within these populations. However, despite this increase in PLWHA-respondents' willingness to disclose their status, there was an increase in reported feelings of shame and decreased self-worth among PLWHA. This may indicate that while HIV education programs affect positive change in stigma towards PLWHA, a greater emphasis on self-confidence and esteem may be needed.



For information and correspondence contact:

Helen Keller International Cambodia
Country Office and Asia-Pacific Regional Office
 House 43Z43 | Street 466, Sangkat Tonle Bassac,
 Khan Chamkar Mon, Phnom Penh | Kingdom of Cambodia
 Telephone | +855 23 210 581 / 213 217 Fax | +855 23 210 852
 E-mail: info-cambodia@hki.org

Country Office:
Aminuzzaman Talukder
 Country Director Cambodia
 E-mail | zaman@hki.org
Alissa Pries
 Nutrition and Gender Analyst
 E-mail | apries@hki.org
Hou Kroeun
 Program Manager
 E-mail | hkroeun@hki.org
Ly Sok Hoing
 Database Manager
 E-mail | lsokhoing@hki.org

Regional Office:
Nancy J. Haselow
 Vice President | Regional Director for Asia Pacific
 E-mail | nhaselow@hki.org
Akoto Osei
 Regional Nutrition Coordinator
 E-mail | aosei@hki.org
Aminuzzaman Talukder
 Regional Food Security Advisor
 E-mail | zaman@hki.org