



STRIDES LEGACY SERIES



Photo by TADEO ATUHURA

# FROM INNOVATION TO SCALE-UP: USING LOCAL SOLUTIONS TO REDUCE MALNUTRITION IN UGANDA

Food prepared during a PDI/Hearth session is shared with children.

STRIDES for Family Health increased access to and improved the quality of integrated reproductive health, family planning, child survival, and nutrition services in Uganda. Management Sciences for Health (MSH) implemented the project with core partners Communication for Development Foundation Uganda (CDFU), Jhpiego, and Meridian Group International.

Funded by the US Agency for International Development (USAID), STRIDES worked in 15 districts of Uganda: Kamwenge, Kalangala, Nakasongola, Kyenjojo, Mityana, Kasese, Bugiri, Mayuge, Kamuli, Kayunga, Mpigi, Kaliro, Kumi, Luwero, and Sembabule.

In recent years, the global health community has been focusing more of its efforts and resources on fighting malnutrition—a complex problem that contributes to 45 percent of deaths among children under the age of five worldwide.<sup>1</sup> Chronically malnourished children are, on average, nearly 20 percent less literate than those who have a nutritious diet.<sup>2</sup> Thus, malnutrition can shape a society’s long-term health, stability, and prosperity.

In Uganda, malnutrition contributes to about 60 percent of child mortality.<sup>3</sup> The 2011 Uganda Demographic and Health Survey found that 33 percent of children were stunted and that only 6 percent of children aged 6 to 23 months were fed appropriately, based on the recommended infant and young child feeding practices. Household food insecurity, poor nutrition, and inadequate access to health care all contribute to the problem. Malnourished children and their caregivers often trek long distances for assistance at health facilities, which routinely lack supplies and trained staff. In addition, families frequently lack funds to support proper recovery.

1. “Maternal and Child Nutrition,” *The Lancet*, 2013. <http://www.thelancet.com/series/maternal-and-child-nutrition>  
2. *Food for Thought, Save the Children*, 2013. [http://www.savethechildren.org/atf/cf/%7B9def2ebe-10ae-432c-9bd0-df91d2eba74a%7D/FOOD\\_FOR\\_THOUGHT.PDF](http://www.savethechildren.org/atf/cf/%7B9def2ebe-10ae-432c-9bd0-df91d2eba74a%7D/FOOD_FOR_THOUGHT.PDF)  
3. *The Analysis of the Nutrition Situation in Uganda*, USAID, 2010. [http://www.health.go.ug/hmis/public/nutrition/Uganda\\_Nutrition\\_Situation\\_Analysis.pdf](http://www.health.go.ug/hmis/public/nutrition/Uganda_Nutrition_Situation_Analysis.pdf)



Photo by TADEO ATUHURA

Community members learn nutritious food preparation during PD/Hearth sessions.

In March 2011, STRIDES conducted a nutritional survey in 13 districts in three regions of Uganda, taking anthropometric measurements of 2,654 randomly sampled children between the ages of 0 and 59 months. The survey revealed an average prevalence rate of global acute malnutrition (GAM) based on weight-for-age assessment of 17.3 percent. The survey also found that 10.9 percent of children suffered from moderate acute malnutrition and 6.4 percent had severe acute malnutrition. The Eastern region had the lowest GAM prevalence rate at 16.3 percent, while the Central region had the highest with 18.2 percent. Prevalence in the Western region was 17.4 percent.

## CRITERIA FOR SELECTING SITES

- ▲ GAM level of malnutrition  $\geq$  30% based on weight-for-age
- ▲ Community volunteers' availability to support implementation, identification, referrals, and follow-up
- ▲ Availability of health facilities with capacity to manage complicated cases of severe malnutrition
- ▲ Availability of locally produced foods with no food-aid programs
- ▲ Complimentary public health and development programs
- ▲ Close proximity of households to ease follow-up
- ▲ Commitment of local leaders and other implementing agencies

## Taking Action

Understanding the need for increased efforts in improving nutrition, the Ugandan government launched the Uganda Nutrition Action Plan in 2011. It provides a framework for addressing malnutrition, with special emphasis on women of reproductive age, infants, and young children. It particularly focuses on the “window of opportunity”—a child’s first 1,000 days of life.<sup>4</sup>

The Ministry of Health partly attributes Uganda’s remaining challenges in improving nutrition to a lack of community involvement in scaling up interventions.<sup>5</sup> Responding to that need, in March 2011, STRIDES for Family Health began using two complementary approaches to community-based management of malnutrition in Uganda: Positive Deviance/Hearth (PD/Hearth) and outpatient therapeutic care using the Ministry of Health (MOH)’s Integrated Management of Acute Malnutrition guidelines. Implementing this intervention in 13 districts until June 2014, the project trained community volunteers and health workers to promote the use of locally available nutritious food, and provided ready-to-use therapeutic foods to selected health facilities.

4. Uganda Nutrition Action Plan, 2011-2016. Unicef. [http://www.unicef.org/uganda/Nutrition\\_Plan\\_2011.pdf](http://www.unicef.org/uganda/Nutrition_Plan_2011.pdf)

5. Uganda Demographic Health Survey (UDHS), 2011.

The PD/Hearth intervention villages achieved an average malnutrition cure rate of 67.5 percent, saving 3,037 children from the devastating life-long effects of malnutrition. Community- and facility-based health workers and volunteers trained by STRIDES have scaled-up the intervention beyond the original targeted villages.

## From Innovation to Scale-Up

Working with the Ministry of Health, STRIDES used the PD/Hearth model to prevent and treat malnutrition by changing community norms in childcare, feeding, health care, and health-seeking practices. The intervention had three primary goals: rehabilitate moderately malnourished children, prevent malnutrition in the community, and empower families to sustain good nutritional status with locally available food.

A main component of the program was the selection of positive deviants – those caregivers who were able to overcome child nutrition problems more successfully than their neighbors despite having access to the same resources and sharing the same risk factors. Village Health Teams (VHTs) asked them to share their practices and behaviors with others in the community through the PD/Hearth program.

STRIDES implemented the scale-up in three stages. First, the project conducted a nutrition survey in the districts. Then, over the period of a year, STRIDES sensitized and trained national-level MOH staff about Hearth and adapted it to the Uganda context. Following a three-month piloting exercise in Mityana district, STRIDES strengthened the implementation strategy, determined logistic needs, and planned the scale-up.

The scale-up process required working closely with the districts to define selection criteria for subcounties and villages. STRIDES trained key resource persons at all levels on the PD/Hearth methodology, nutrition data collection, analysis, and use. In each district, the project targeted five hard-to-reach subcounties with high levels of malnutrition, identifying them based on the selection criteria (see box opposite). Then, in each subcounty, STRIDES selected villages that were worst-affected by malnutrition.

The project identified community development officers, health educators, teachers, members of civil society organizations, facility-based health workers, and other stakeholders to plan, monitor, adopt, and sustain the PD/Hearth approach. At the community level, STRIDES trained VHTs in nutrition counseling, assessment, categorizing nutrition status based on measuring the mid-upper arm circumference, and determining the socio-economic status of each household based on set criteria and village-specific wealth rankings.<sup>6</sup>

6. Mid-upper arm circumference: A special color-coded tape used to determine nutrition status.



## POSITIVE DEVIANT FOODS

The positive deviance inquiries identified several nutritious foods that positive deviant children ate but were not commonly consumed by others in the community. These included:

- ▲ Amaranthus seed
- ▲ Chayote, a local squash
- ▲ Soursop, a fruit that is often juiced
- ▲ Cassava leaves
- ▲ Sweet potato leaves
- ▲ White ants
- ▲ Bush rat
- ▲ Yogurt
- ▲ Dried papaya seeds
- ▲ Dried pumpkin seeds

## STEPS OF HEARTH IMPLEMENTATION

### STEP 1

Mobilize and train VHTs and community members.



### STEP 2

Conduct growth monitoring and categorize children against standard measurements for growth monitoring and promotion. Refer severely malnourished children to a health center and provide therapeutic milk products.



### STEP 3

Identify positive deviants and conduct positive deviance inquiry. Identify and train Hearth leaders.



### STEP 4

Conduct 12-day Hearth sessions with caregivers of the moderately malnourished children.



### STEP 5

Hearth leaders conduct home visits to Hearth participants over a 14-day period to support new behaviors and assess if children have been cured. If not cured, leaders refer the child to a health center.



### STEP 6

Expand Hearth sessions to other villages or repeat Hearth sessions as needed.

## Implementing the PD/Hearth Program

Trained VHTs liaised with local health facility staff, political leaders, and other community resource persons, such as opinion leaders, to mobilize and screen all children aged 0 to 59 months for malnutrition. VHTs counseled caregivers of children younger than six months on exclusive breastfeeding and appropriate complimentary feeding, and also counseled caregivers of children aged 6 to 59 months based on their children's nutrition status. Caregivers were invited to enroll any of their moderately malnourished children in the Hearth program. Children who were severely malnourished or had medical complications were referred to health facilities. Hearth children were also linked to health centers for curative and preventative services such as Vitamin A and iron supplementation and deworming.

Based on village-specific criteria, community leaders and VHTs rated all households with children 6 to 59 months as "poor" or "rich," relative to others in the community. At poor households in which all children had normal nutritional status, community leaders, guided by subcounty staff, conducted "positive deviant inquiries" to identify good practices and behaviors among caregivers. STRIDES trained VHTs and selected positive deviants to lead Hearth sessions in and around their homes where food is prepared – the Hearth—under the supervision of subcounty-trained staff.

## Hearth Sessions

During the 12-day Hearth sessions, caregivers of malnourished children gathered for two hours at a Hearth leader's home to learn new practices in child care, child feeding, health seeking, hygiene, and sanitation. Each day the participants prepared a nutritious meal with locally available food for the children. The project required all Hearth attendees to contribute food and household cooking equipment.

On the first day of the Hearth, all malnourished children were weighed, immunized, and dewormed based on national protocols. The VHTs recorded data on community PD/Hearth follow-up forms.<sup>7</sup> Children whose health condition could not be managed at the Hearths were referred to health facilities for appropriate treatment. Hearth leaders used songs and stories during the Hearth sessions to share messages about nutrition as well as family planning, child immunizations, and other important health topics.

After the 12 Hearth days, Hearth leaders followed up with the caregivers in their homes for the next 14 days to support adherence to newly acquired practices and behaviors. On day 14, all Hearth children were weighed to determine weight gain. VHTs gave caregivers immediate feedback on their children's treatment outcomes and discussed appropriate support. They then submitted the collected Hearth data for analysis and feedback to respective subcounty and district leadership. Children who gained a minimum of 400 grams over the 26 days were categorized as "cured." Once a village achieved a cure rate of 75 percent, STRIDES expanded the Hearths to neighboring villages.

7. Data collected includes the name of village, positive deviant, VHT, name and age of enrolled child, nearest health facility, daily attendance.



A sample of some simple yet nutritious meals at a PD/Hearth session

## Results and Lessons Learned

Eight of the 13 partnering districts achieved cure rates for malnourished children above 80 percent, which outperformed the national target of 75 percent. Of the 4,501 moderately malnourished children aged 6 to 59 months who participated in Hearth sessions, 67.5 percent, or 3,037, were cured after 26 Hearth days. STRIDES referred malnourished children who failed to attain the minimum weight gain over 26 days to health facilities for appropriate management. Cure rates improved with each year of implementation, from 59.5 percent in the first year of PD/Hearth implementation to 72.7 percent in the third year (see Table 1).

Districts in the Central region had lower cure rates than in the Eastern and Western regions, which lowered the overall cure rate. Several conditions appear to have contributed to this. For one, food insecurity in the Central region limited food contributions to Hearth sessions and subsequently compromised weight gain among

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Table 1. Percentage of children cured at STRIDES-supported community PD/Hearth sessions (cure rate)

Project year	No. of Hearth sessions	No. of PD/H admissions	Cure Rate (%)		Death (%)	Defaulters (%)
			Cured	Target		
Y1	31	311	59.5	75	0.0	35.4
Y2	249	2,980	66.2	85	0.3	15.8
Y3	109	1,210	72.7	62	0.2	6.0
Overall	389	4,501	67.5	-	0.2	14.6



The actual implementation of a PD/Hearth program in a village takes 26 days, but the planning, training, logistics, and leadership-building required to get the community and health system ready takes several months.

*A VHT prepares greens for malnourished children during a PD/Hearth session at Kigusa village, Mutere subcounty in Bugiri district.*

## PD/HEARTH RESULTS:

▲ **389**

HEARTH SESSIONS

▲ **3,037**

CHILDREN CURED

▲ **3,198**

PEOPLE TRAINED IN  
CHILD HEALTH AND  
NUTRITION

Hearth children. Most participants only contributed carbohydrates during Hearths. Scheduling Hearths during seasons of food abundance could ensure increased contributions of protein-rich foods by participants, and also provide opportunities to improve knowledge and practices towards food preparation and consumption during hunger seasons. Experience in other countries has shown that the program may not always be appropriate in food-insecure areas.

Household proximity may have also played a role in the program outcomes. Nakasongola district, which had a cure rate of 38.8 percent, is a pastoralist district, requiring Hearth children and their caregivers to trek longer distances to access the Hearth sites. This led to irregular attendance and tardiness, which likely contributed to low weight gain among Hearth children and low uptake of new practices and behaviors.

Lastly, Hearth group size may have been a factor in success. The Central region recorded the highest levels of malnutrition (GAM of 18.2 percent) during the nutrition survey conducted in 2011, and subsequently more malnourished children were enrolled in Hearth compared to other regions. This contributed to larger groups of caregivers and children per Hearth leader. A higher child-to-leader ratio compromised the quality of supervision by the subcounty staff overseeing each group. This also seemed to explain the differences between Sembabule and Nakasongola, the highest- and lowest-performing districts. Cure rates were higher when managers targeted six to eight children per Hearth session. In villages with high numbers of malnourished children, more Hearth sessions would help ensure lower child-to-leader ratios.

Despite these conditions in the Central region, the PD/Hearth approach was successful in rehabilitating moderately malnourished children in their communities with the use of locally available foods and without medical intervention. Program staff and partners said the holistic approach to address malnutrition through comprehensive services, the involvement and commitment of community leaders, and the close proximity of households were key to the success of the approach.

Program staff and partners attributed the overall achievements to the emphasis on observing strict selection criteria at all stages of implementation, ensuring caregivers' and their children's regular attendance at Hearth sessions, and active participation in demonstrations.

## Conclusion

Moving the PD/Hearth program from innovation to pilot to scale-up took time and careful planning, which sometimes clashed with children's urgent rehabilitation needs. As Hearth is a new approach in Uganda, STRIDES spent considerable time sensitizing decision-makers to garner leadership support and commitment, as well as supporting the MOH to adapt training materials, data collection, and reporting tools.

PD/Hearth implementation in a village takes 26 days, but the planning, training, logistics, and leadership-building required to get the community and health system ready takes several months. While PD/Hearth takes place in communities, it is important to also ensure that nearby health centers are trained and equipped to treat the severely malnourished children identified during growth monitoring. Program implementation in some communities was delayed until referral health centers had essential supplies and ready-to-use-therapeutic foods.

As part of the scale-up, additional community mobilization and behavior change communication strategies, such as "edutainment" in villages, and local media messages improved demand for reproductive, maternal, newborn, and child health services and complemented the PD/Hearth intervention. To further support scale-up, partners such as the MOH, districts, and implementing agencies should devise a means of linking the PD/Hearth program with food security, micro-finance programs, and income-generation initiatives.

Noticing the successes of PD/Hearth, the MOH has worked with STRIDES and World Vision Uganda to scale up the approach.

*Caregivers prepare for a PD/Hearth session.*



Photo by CINDY SHINER



Food preparation during a PD/Hearth session

The community resource persons, leaders, and health workers received training, equipment, and tools that allowed them to expand the PD/Hearth program. In all, STRIDES trained 3,198 people in child health and nutrition. In several districts where STRIDES supported district sustainability plans, nutrition programs including a PD/Hearth component have been prioritized. Noticing the successes of PD/Hearth, the MOH has worked with STRIDES and World Vision Uganda to scale up the approach. Since 2013, the ministry has convened a series of technical and consensus-building workshops to develop national guidelines for PD/Hearth.

The benefits of the Hearth intervention extend beyond the individual child who was cured of malnutrition. After a Hearth, caregivers were able to recognize malnutrition in other children and to treat it early with locally available, nutrient-dense foods. This community-based approach also has the potential to increase awareness of nutrition and extend messages delivered by community health workers beyond the family of the malnourished child. As one positive deviant caregiver said, "If I go to any community I can talk about child feeding. Like my grandmother, I feel I know that my children will feed their children better." ■

*The PD/Hearth approach used in Uganda relies on the Child Survival Collaborations and Resources (CORE) Nutrition Working Group guidelines, MSH's experience through the USAID-funded Extending Service Delivery Project in Burundi, and World Relief's Umucyo Child Survival Program in Rwanda. Besides STRIDES, World Vision Uganda, Plan International, and the International Baby Food Action Network (IBFAN) use the PD/Hearth approach in Uganda's Northern and Eastern regions.*

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