

**CORE**  
**Child Survival Collaborations and Resources Group**

**Positive Deviance/Hearth for Nutrition**  
**Technical Advisory Group Meeting**

**Washington, DC**  
**December 5, 2002**

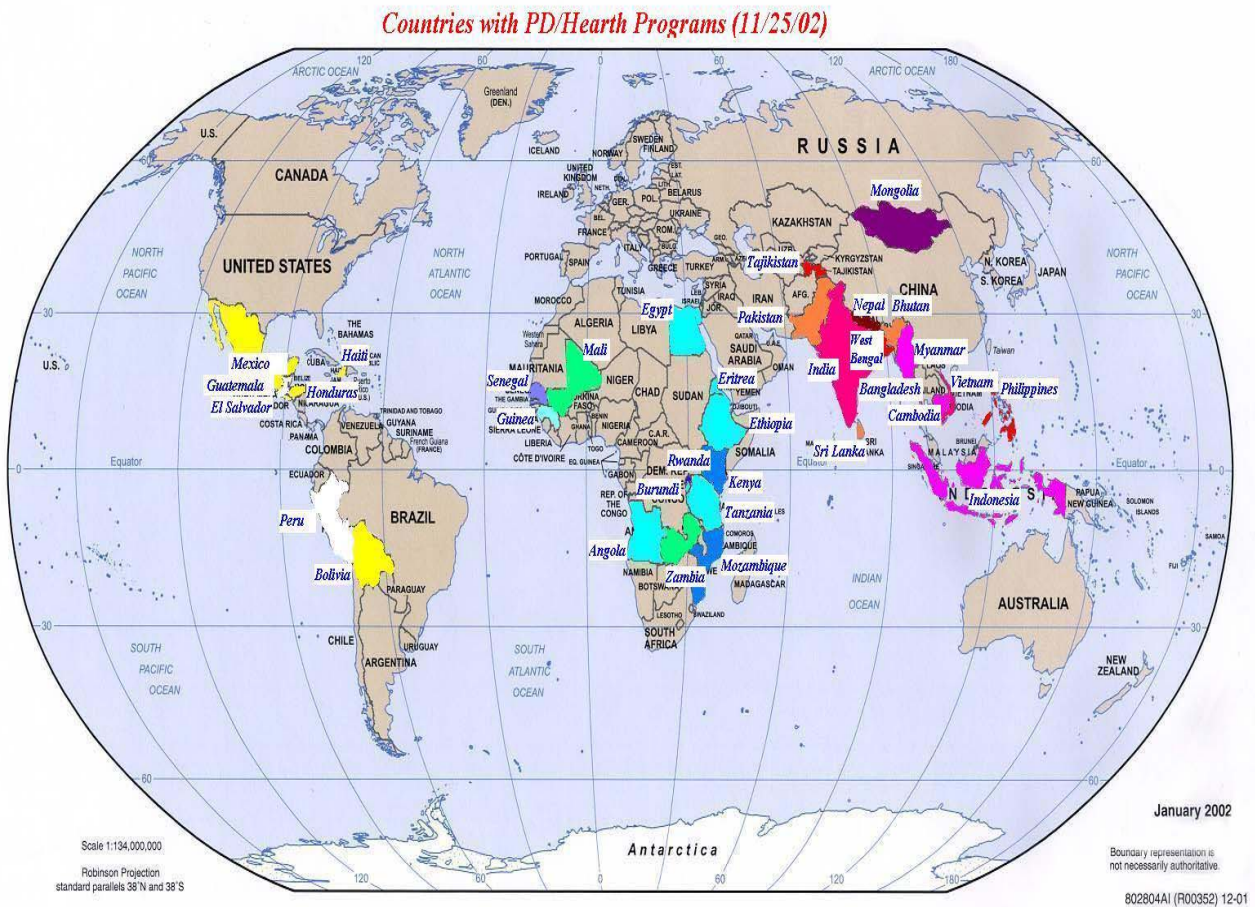
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## INTRODUCTION

In the early 1990s, a series of small-scale studies with three organizations in three different countries documented the positive impact of Positive Deviance / Hearth programs in sustainably reducing malnutrition in children. The methodology for these programs evolved from the Hearth (Foyer) program earlier introduced in Haiti. Positive Deviance, a strengths-based approach, is based on the belief that in every community there are a few individuals and families whose particular practices enable them to have better health compared to their similarly impoverished neighbors. Hearth is an implementation strategy that supports caregivers to learn and practice new health behaviors together in a safe environment and to rehabilitate their malnourished children. The program methodology was rapidly disseminated to the PVO community via manuals, studies, trainings, field visits and consultant visits. By 2002, 14 CORE PVO members, several multilateral and bilateral agencies and many local NGO partners were implementing PD/Hearth programs in over 35 countries in Africa, Asia, LAC and Eurasia. (Please see Appendix III).



Adaptation of the PD/Hearth approach has taken place with attempts to reach children of various ages, with various levels of malnutrition, in various types of settings. In other places,

implementing organizations have attempted to quickly expand the geographical coverage of their PD/Hearth programs. Some of these adaptations have proven successful, while others have not shown similar positive results. In each experience, lessons were learned about the implementation standards, quality and monitoring systems needed for an effective program.

The CORE Nutrition Working Group and FANTA (Food Aid and Nutrition Technical Assistance Project) called this meeting of technical specialists (please see Appendix 2 for a list of participants) to share their recent experiences using PD/Hearth and to provide guidance on better practices that will help improve the quality of implementation. The agenda can be found in Appendix 1. The meeting objectives were to:

- Reach consensus on the essential elements of PD/Hearth for program design and implementation.
- Summarize as best we can experiences and lessons learned to ensure the quality of PD/Hearth programs.
- Exchange results related to impact measurement of PD/Hearth programs
- Identify information gaps to prioritize further research and generate knowledge
- Define next steps.

## **GETTING STARTED WITH PD/HEARTH**

Participants brought up two concerns related to starting a PD/Hearth program which frequently cause confusion. One concern is the level of malnutrition needed to merit intervention with a PD/Hearth program. The second concern is the appropriate age group to target.

The general recommendation is that PD/Hearth programs work best when a minimum of 30% of the children in a given location are malnourished. In actual practice, this is a guide, and the determination will fluctuate according to the degree of malnutrition and the density of the population.

This guidance has been subject to interpretation, depending on the local context. For example, in PD/Hearth communities in Haiti, 25% of children are 3 standard deviations below the median and 40% are -2 and -3 standard deviations. If you consider children also mildly malnourished (-1 standard deviation) then 60% of children are malnourished. Given the large number of children and limited program resources, the program needed to concentrate on those children most malnourished. If additional resources became present, they could extend to those children mildly malnourished. In the Philippines the malnutrition level in program areas is about 30% and in Madagascar PD/Hearth started in communities with 40% malnutrition. Thirty percent of malnutrition seems to be on the low side, especially if the population is not concentrated. With less than 30% malnutrition, it may be difficult to find sufficient participants living in close enough proximity to regularly attend the Hearth sessions and receive follow-up support. Plus the overall impact of the PD/Hearth intervention in the community will not be as noticeable, thus making it difficult to motivate further community involvement.

The age of participants is another point of concern. There is much discussion over the age grouping to use. The under-3s and especially under-2 year olds are the age group having the most potential for impact and prevention. In some instances, there is enormous pressure from parents of the 3-4 and 4-5 year-olds to have them also join the Hearth sessions. Parents want the older children in the Hearth program for various reasons, i.e. they are pre-schoolers, and the parents are anxious that they be ready to attend school. In Gretchen Berggren's experience, Hearths that included the 3-4 and 4-5 year olds placed all of the emphasis on the older kids, and the under-3s and especially under-2s were largely absent or ignored. When absent, the younger children did not receive adequate follow-up. "We would all like to see help going to the 3-5 year olds, but that is not where the real pay off is in terms of preventing the permanent effects caused by malnutrition."

Caution is urged when determining the age range for Hearth because infants 0-6 months of age should be exclusively breastfed. It was found that different programs included different age ranges, i.e. some had from birth to two years of age. Others invited children from six months to three years of age. Many times if we say there is 40% malnutrition in 0-3 year olds, we are talking about birth to 3 year olds, but our actual target group is from 6 months to 3 years. Children from 0-6 months of age should be less malnourished than the 6 months to 3 years, if they are appropriately breastfed. However, in many communities mothers initiate early complementary feeding and children become sick and malnourished. In these cases, some feel we need to invite those children 3 to 5 month olds that are already in trouble. In such cases, the focus would be on helping mothers revert to exclusive breastfeeding until the child is 6 months old. The experiences of other mothers who have always managed to exclusively breastfeed in the same circumstances serve as examples.

In Vietnam, the Save the Children PD/Hearth program is transitioning from one of rehabilitation to one of prevention. To do this, staff have also focused on breastfeeding for children 0-6 months of age to catch them before they become malnourished. As part of this transition, Save the Children undertook a qualitative study in North Vietnam. A large PDI was conducted with 120 mothers to better understand key barriers to optimal breastfeeding practices. The biggest barrier to breastfeeding was women's return to work outside the home shortly postpartum, within the first month or two. There was a need to develop some behavior change strategies, a combination of mother-to-mother support groups which included Positive Deviant mothers, plus counseling and negotiation strategies to bring about changes in breastfeeding practices, even for mothers that work outside the home. Mothers were presented with options in groups. Each group included a Positive Deviant mother, a mother who was working outside the home and still explicitly breastfeeding. Program staff gave them options for continuing to explicitly breastfeed, whether it was taking the child to the field with her, coming back from the field to feed the child, wet nursing, or other strategies. Although it has not been fully documented, there is evidence that suggests this strategy is working well. Also, participating mothers who come with a malnourished 2 or 3 year-old are very often breastfeeding a baby, and this baby is welcomed at the Hearth where breastfeeding is encouraged. If the baby is still exclusively breastfed, support is provided to encourage continued breastfeeding, and there is at least one educational session devoted to breastfeeding during that two-week Hearth session. In this way the mothers learn about good breastfeeding while they are also learning about feeding and caring for the older child. In Haiti, quite a few

of these young children attended Hearth sessions even though they had normal or only mild malnutrition. Staff and mothers questioned their participation in Hearth but let them stay, encouraged them to continue to breastfeed, and included them in the Growth Monitoring and Promotion.

## **ESSENTIAL ELEMENTS of PD / HEARTH for PROGRAM DESIGN and IMPLEMENTATION**

While PD/Hearth must be locally adapted and many of the implementation steps are flexible, there are several essential elements that must be included in order to maintain the effectiveness of the PD/Hearth approach. Once it is determined that communities do indeed have the desire to participate, have at least 30% of malnourished children, then, these key elements are critical for a quality PD/Hearth program. After a review and discussion of several elements, participants unanimously agreed that the following are critical for program impact.

### **ESSENTIAL ELEMENTS OF PD/HEARTH**

**Conduct a Positive Deviance Inquiry in every target community in every season using community members and staff.**

**Prior to Hearth sessions deworm all children and provide needed micronutrients.**

**Use Growth Monitoring / Promotion to identify newly malnourished children and monitor nutritional progress.**

**Utilize community women volunteers to conduct the Hearth sessions and the follow-up home visits.**

**Ensure that caregivers bring a daily contribution of food (preferably PD food) and / or materials to the Hearth sessions.**

**Design Hearth session menus based on locally available and affordable foods.**

**Have caregivers present and actively involved every day of the Hearth session to the greatest extent possible.**

**Conduct the Hearth session for 10-12 days within a 2 week period.**

**Include follow up visits at home for two weeks after the Hearth session to ensure the minimum of 21 days of practice needed to change a new behavior to a habit.**

**Actively involve the community, including influential persons, throughout the process.**

A description of each of these key elements follows.

**1. Conduct a Positive Deviance Inquiry in every target community in every season using community members and staff.**

Family menus change seasonally. Often programs conduct one PDI and continue to use the same menu throughout the year. This is erroneous because food availability and cost changes. What is available in one season may not be available in the next. PD families may use very different foods at different times of the year. PD/Hearth menus need to be adjusted accordingly.

What exactly is meant by asking the volunteers and community members to do the formative research (PDI)? The volunteers should be on the team that goes to the houses, but they can't necessarily take the lead in reliably following a checklist and asking the discussion probes. There needs to be a trained person guiding or leading them.

**2. Deworm all children and provide needed micronutrients prior to the Hearth sessions.**

Malnourished children should be de-wormed prior to the Hearth sessions to ensure that during the sessions they can absorb all of the needed nutrients for their rehabilitation. The children should also be provided with a Vitamin A capsule, iron, and zinc supplement so that their bodies have enough nutrients to support rapid growth and resist illness. Deworming and micronutrient supplementation could be provided as part of the Growth Monitoring and Promotion program or at the health facility, but should not be provided during the Hearth sessions. This can medicalize the Hearth sessions, and caregivers will believe that the medicine, rather than the food and new behaviors, is the solution. Research by Dr. Scrimshaw shows that if anemia is not corrected by age 2 years, IQ will suffer.

**3. Use Growth Monitoring and Promotion to identify newly malnourished children and monitor nutritional progress.**

Based on their work, Monique and Jerry Sternin suggested that Growth Monitoring and Promotion be highlighted as an essential element. While a population-based nutrition assessment can be conducted to identify malnourished and PD children, routine Growth Monitoring and Promotion should be subsequently used as a tool to identify newly malnourished children for participation in Hearth, monitor the nutrition status of the entire target group, and ensure that the program results are sustained over time. Growth Monitoring and Promotion is critical to the PD/Hearth program at both the individual and community level. While it helps identify malnourished children that can participate in the Hearth, it also helps demonstrate the state of malnutrition in the community and mobilizes the community to take action and participate in Hearth sessions. Data is needed to know when the community has successfully reduced overall levels of malnutrition sufficiently so the PD / Hearth program in that community can end.

Even though many specialists recommend weight-for-height as the key indicator for nutritional status, the meeting participants still recommend weight-for-age for PD/Hearth programs. The consensus is that problems arise in measuring height when weight-for-height, even carefully controlled, is used. There are four important reasons why weight-for-age is used instead of weight-for-height. They are:

1. Weight-for-age cards are available worldwide through UNICEF distribution. Most ministries of health have nutritional norms prepared for their countries and still use weight-for-age. Program staff should work in cooperation and collaboration with the MOH and follow their norms. Most MOHs in the developing world use the weight-for-height only as an emergency assessment or research tool.
2. It takes three operators to get a very accurate height or reclining length on a child. In many countries, children are backed up against the wall and their heads positioned wrong. Gretchen reported, "I, along with three operators, measured and weighed one thousand children monthly over a three-year period, using length boards. Its surprising how many of the children got shorter. This was a well-supervised program, with at least three doctors supervising. If you are going to use weight-for-height, you have to use sure boards, you must have three operators, and you have to carefully control for the children that lose height."
3. Weight-for-age changes rapidly enough that the mother can see something on the chart. If the object of the program is to teach the mother, then weight-for-height is much less effective to teach her with, because height changes so slowly.
4. The same children are identified if you pick the low weight-for-height kids; they are also often low weight-for-age.

Growth Monitoring and Promotion needs to be continued throughout the program. Dr. Carl Taylor has talked about the need for Surveillance for Equity in order to find the ten percent of marginalized children that are not registered. In order to find all malnourished children in a community, you must weigh every child and identify newly malnourished children. If you go into a clinic and weigh all the kids that come into a clinic, you have got an enormous amount of self selection and bias introduced. It is very important that a door-to-door registration be done.

**4. Utilize community women volunteers to conduct the Hearth sessions and the follow-up home visits.**

Peer support and a safe environment are part of the behavioral change process. Community women volunteers that are trusted not only provide better and more sustainable support than outsiders, but also become so convinced of the PD practices that they can persuade the community as a whole to adopt the changes. They often become so motivated by the program that they spread the process to other communities. In Senegal, women volunteers became so excited when they witnessed the visible changes in the children, that they went to nearby

villages where they had relations and friends to share the methodology for reducing malnutrition.

**5. Ensure that caregivers bring a daily contribution of food (preferably PD food) and / or materials to the Hearth sessions.**

At some point during the Hearth sessions, each mother must bring a PD food for the program to work. In many resource poor settings, fairness, amount and division of foods can become an issue. The mothers should bring some of the PD foods, but they can also bring other foods, fuel, water, or cooking pots. The idea is that they get in the habit of bringing something, but every mother/caregiver should have to bring some of the PD food at some point during the Hearth. This gives her experience in seeking out and obtaining the PD food.

The question of what each person will bring to the Hearth should be decided before the session begins. The caregivers and the community must be made aware that contributions are an expected part of the process.

A Hearth in India had the experience of the mothers wanting to bring a financial contribution instead of PD/food or supplies. In more urban areas, there is increasingly a cash economy in place. Another issue that came up in India was how to equally distribute the contribution somebody brought that is clearly more expensive than others. The staff tried to make it comparable and divide it up in units. There should be some fairness in division.

In Guinea, every mother brought something, even the extremely poor ones. The mothers all got together before they came and shared with each other. So if one was bringing rice and another had nothing to bring, they agreed to share.

In Haiti there were some women that were too embarrassed to attend the Hearth session because they didn't have anything to bring. Save the Children addressed this problem by pulling away the volunteer mother and giving her money to buy a little food to share with the indigent mother. This was done outside of the group so that no one else saw that this woman did not have anything to bring. In some communities water was also a big issue requiring agreement on how to donate this contribution.

Save the Children has program data from Vietnam that evaluates daily contributions at the Hearth (or NERPS – Nutrition Education and Rehabilitation Program Sessions). Unless adequately managed and supervised, contributions drop as the Hearth sessions proceed. There were several explanations to explain the decrease in daily contributions. Contributions need to be decided ahead of time because if everyone comes with a big donation one day and there is more food than they can eat, it becomes very de-motivating to bring it on subsequent days. The program needs to consider the fairness in the amount brought, and also keeping everyone from bringing the same thing. Each mother does not bring the ingredients for her own child's portion; they bring something; i.e. a few sticks for the fuel, or rice. Somebody else brings greens, and somebody else brings another component... if everyone brings sticks, it's not going to work.

In Vietnam the PD foods were frequently taken from the canal, and in Mozambique the Marula nuts were free for the taking, but in some countries the PD food will be a more costly item and they will not be able to afford it. In these cases, the program needs to re-evaluate whether this food is really a PD food since a PD food should be accessible to the poorest of families. It may be that these families have other problems that need to be addressed differently. Maybe the PD inquiry needs to dig deeper to understand how the poorest PD families manage to buy or acquire this PD food. This resource management strategy can be included as part of the Hearth learning.

There were some extreme cases in which women were not coming simply because they had nothing to bring. The problem is that they also cannot feed their children outside of the Hearth sessions. In extreme cases, alternative poverty alleviation programs linked to PD/Hearth are critical. For example, in Haiti, Save the Children had 40% non-responders. Half of these children had tuberculosis or another chronic disease. The other half needed to be in a poverty alleviation program. In Haiti, Hearth helped to identify the women who should have priority getting into poverty alleviation programs.

Several different methods have been attempted to deal with completely indigent mothers. The mayor of an area in the Philippines volunteered to give money for the food, and PSBI decided to dissuade him because all the women were supposed to bring the supplies. PSBI told him he could give incentives to the volunteer moms instead. On the other hand, in Madagascar, CRS is trying to get the mayors or local authorities to be the safety net for that one family per Hearth that is completely indigent. To a degree, it's ok to improvise. It is not ok to say some mothers never have to bring anything to any of the Hearths, because the portions get too small and they don't learn that they can go out and get the food that they need to. Each project needs What we are trying to do to identify the degrees of freedom for each community so that the program works and sustainably reduces malnutrition.

#### **6. Design Hearth session menus based on locally available and affordable foods.**

In several programs, food is a scarce resource and Title II food aid is being used in these communities. There are some interesting models being designed to look at how PD/Hearth and food aid can be combined, i.e. Steve Collins' work with Valid and Concern Int.. However, this is a specialized topic that requires its own technical advisory meeting to share lessons learned. Some examples with Food Aid were discussed.

A model is being developed in Haiti that targets pregnant and lactating women and their children under-2 years with Title II food distribution. The women wanted Hearth, and the Haitian doctors discouraged training women to use WSB (Wheat Soy Blend), because it is not viewed as a sustainable alternative. In Haiti, they negotiated with the families, and gave them a ration of the Title II foods a week before the Hearth sessions, in exchange for them bringing the ingredients for the Hearth menus that are all locally available. It's an exchange of gifts; a Haitian doctor came up with this idea and it seems to be working.

In Indonesia, participant families are receiving Title II food. The program uses Title II rice, a food which all families would access anyway, in the Hearth. However, the other donated

foods are promoted for general family consumption, with no reference to them as necessary to feed or rehabilitate the malnourished child.

There has been much discussion on the amount of calories that are critical for different age groups and levels of malnutrition that need to be provided. The key reference for rehabilitation of severely malnourished children is the WHO book called “Management of Severe Malnutrition: A Manual for Physicians and Other Senior Health Workers” published in 1999. This book though does not offer a minimum daily requirement for less severe malnutrition. The WHO has recently changed the energy and protein requirements for all children. The required numbers for protein, calories and nutrients promoted in PD/Hearth should be periodically checked to conform to the latest WHO guidance.

A local doctor in India was concerned that the amount of protein being given to the children was so high that it could kill them. It should be noted that the child does not necessarily eat the full requirements esp. in the first days of the Hearth sessions, but still should be offered that much. The first day the child may only eat three or four bites, the next day he takes more, and by the end of two weeks, the mothers will say, “I can’t believe he is eating so much.” That is part of the story of the Hearth; the mothers come with a preconceived idea that the child will only eat a little bit, but that changes as the child recuperates.

Project staff should review the caloric and mineral requirements for the F75 (initial phase of treatment) and F100 (for rehabilitation phase) formulas that WHO recommends. The calories that children will actually absorb is amazing, and it is documented in a hospital setting. More recommendations are needed on how to add more micronutrients into the meals.

The Release Project could not find any affordable meals that met minimum standards, so they added nuts to their menu, which were available. Since this is a rehabilitation menu, these children will eat enormous numbers of calories if offered. Monique Sternin recommends that you tweak the menu to be sure that it is calorie dense enough. In Mozambique, Marula nuts were used; in Bangladesh groundnuts or peanuts were the simplest, least expensive ways to get calorie density into the meals. Once the child is rehabilitated, the amount of these foods can be reduced, so that families can still afford to prepare good local menus.

**7. Have caregivers present and actively involved every day of the Hearth session to the greatest extent possible.**

Some Hearths interpret this well and make adaptations in the design to include mothers and/or the actual caregiver. Other programs must develop strategies to ensure that the mother or main caretaker can attend as often as possible.

One project in Guinea excused the mothers/caregivers on market day because wife abuse and the beating of women was prevalent. The occasion they are most likely to get beaten is market day because they don’t go early enough or negotiate enough, etc. In order to keep the women from being abused, they are excused on market day and an older sibling will come instead. The Cariama Project in Nicaragua experienced a majority of caretakers vs. mothers being present, predominantly older siblings.

On any given day, Hearths in Vietnam experienced absenteeism of over 50%. The good news was that mothers who were absent made an arrangement where the meal was home delivered. David Marsh says, “I think it is potentially quite powerful to arrange a set up where there is a home demonstration that the baby can eat this amount of food. This is different than finishing two weeks of Hearth and conducting periodic home visits. This is actually bringing takeout. We have not conducted any analysis on whether there was a correlation between absenteeism and recuperation.” PSB also had a problem with absenteeism in the Philippines; they are unsure if it was made clear to the families that caregivers were also welcome at Hearth sessions.

Ti Foyers in Haiti were very strict about absenteeism; if someone was missing, either someone in the group or the whole group would go out to that person’s home, and bring them to the Hearth session. There was no resentment because the mothers knew it was a part of the program; if they started an hour late, they started an hour late. There is perhaps a cultural difference in how strongly attendance is enforced. In some places you can do that, in other places you wouldn’t dare.

One of the reasons Hearth is so special is because it has all these ways to bypass social norms. In a way it is a mechanism for changing the dynamics that lead to isolated malnourished kids. There are a lot of other situations, besides nutrition, that this strategy could possibly work.

In Bangladesh, World Relief staff saw mothers sneaking in, getting their food, and sneaking out to feed their baby at home. These mothers explained that they had a very punitive mother-in-law that didn’t approve of their attendance. The only way these mothers could participate was to sneak in. Participants didn’t want them to be left out, knowing their babies could die of malnutrition. And they thought that the mothers in-law would come around when they saw the baby beginning to improve, and in fact that’s what happened. In short, the women themselves solved these problems.

Hannah Gilk reported, “There is a connection between absenteeism and food contributions that we saw in the Philippines. Many mothers preferred to stay home when they had nothing to bring, out of embarrassment. I’m not quite sure if it was made clear to them that they could bring water or cooking pottery or something else to contribute.”

#### **8. Conduct the Hearth session for 10-12 days within a 2 week period.**

The purpose of Hearth is to demonstrate to the mother that there can be a change in the child. This is an essential element. The success of the Hearth program is demonstrated by the visible change that takes place in the child. The child becomes bright, active and hungry as she recovers. To recover, the malnourished child must be fed consistently with the minimum number of calories, protein and nutrients. It takes approximately 11 days to witness positive changes. Spreading the Hearth days over a longer period time dramatically decreases program effectiveness. Children fed the additional meal only sporadically will not recover quickly or possibly at all.

**9. Include follow up visits at home for two weeks after the Hearth session to ensure the minimum of 21 days of practice needed to change a new behavior to a habit.**

Home practice with support is critical to ensure that the new behavior will be adopted at home. A current rule of thumb is that it takes a minimum of 21 days of practice, on average, needed to change a new behavior into a habit. This rule of thumb is described in the 2001 book “Taking Learning to Task” written by Jane Vella and published by Jossey-Bass.

By the end of the two-week Hearth session, volunteers may know which families will need the most support to make the changes. All families should receive visits from the volunteer or supervisor initially, but then, the volunteer may need to visit certain families more often than others.

**10. Actively involve the community, including influential persons, throughout the process.**

This is a community program and will not work unless the community is actively involved. This includes inviting influential people in the community to participate in program design and monitoring from the beginning. Involve both those who could be potential obstacles and those who can help such as health workers, fathers, grandmothers, and mothers-in-laws.

## **COMMUNITIES WITH NO POSITIVE DEVIANT**

Strategies can be identified when no Positive Deviant is found. World Vision Canada’s project in Guatemala went to a neighboring community when no positive deviant was found. The two communities were very homogenous – same level of poverty, the same language was spoken and many of the people were interrelated by marriage. Volunteers from community A conducted a PDI in community B when they couldn’t find a PD in community A. They found Positive Deviants in Community B and used the findings to develop Hearth sessions in both communities.

Looking for health and caring behaviors in addition to PD foods should also be stressed. Frequency of feeding and amounts of food given to a child are also important parts. Projects need to distinguish between not finding Positive Deviant kids, not finding Positive Deviant foods and not finding Positive Deviant behaviors.

In an emergency program, Concern in Ethiopia identified well-responding children in therapeutic feeding programs and had them participate in the Hearth sessions.

## **PROGRAM DESCRIPTION OF PD / HEARTH PROGRAMMING: A CASE STUDY**

### **Presentation by Kathryn Bolles on Ti Foyers in Leogane, Haiti**

Leogane is a district of Haiti, with a population of 200,000, and 1 district hospital serving the population. The district is broken down into 114 villages with one village health worker responsible for each village. The village health workers hold a rally post once a month, in each village to vaccinate and weigh children under-5 years of age, and plot this information on growth and health cards. That is the extent of their responsibility.

There are plains and mountain communities. The average percentage of malnutrition is 25%, although it is much higher in the mountains where food is sparser and communities are further from the hospital and other resources. Both plains and mountain communities were picked to test the impact of PD/Hearth in different locations.

Before beginning PD/Hearth, the project conducted a baseline and found a much higher percentage of malnourished children than what they actually found when they registered the entire household. The baseline was a random study, and they found 32% malnutrition in the plains and 61% malnutrition in the mountains. It was interesting that after staff went into each village and weighed every single child, they found lower percentages.

Project staff looked at data from all of the village health workers and identified the areas that had the most malnutrition. The project has completed three PD/Hearth cycles. Some of the results are just based on the first cycle. The first cycle involved a small case control. The VHW acted as liaison with the community leaders and helped staff to meet with 5-10 respected community members in each group to ask their permission, and in effect, get their buy-in. As there is a lot of resentment towards anything government, we had to explain that we were taking census only for the children of the village, not the government.

The Monitrices supervise PD/Hearth in each village. The community leaders selected women they thought would be appropriate to lead this program. We held one community-wide meeting and invited the nominees. We then gave them a written and oral test. Those that passed became our Monitrices, and went on to further training. We tried to get two from each village, but in some we only found one. Staff drew a map of every village and went with our monitrice and the village health worker door-to-door registering every household. They collected a lot of health information on children under-5 years, and also asked socio-economic questions that would help determine who the positive deviants were. The results were analyzed and put into booklets that included vaccination history, deworming, and weight-for-age. Only 20% of the children were actually getting vaccinated and going to the post. Based on the data, staff selected a positive deviant. Staff also compiled a list of all the children below  $-2$  standard deviations to invite to the Hearth.

Training for the monitrices was a 5-week process. In *week one*, there were a lot of guest speakers from local hospital staff to community health worker supervisors to talk about different lessons. A local priest talked about professionalism and ethics. Project staff supplemented info where necessary. There was an exam at the end of week 1 on breastfeeding, family planning, diarrhea, and acute respiratory infections. In *week 2*, the monitrices went on a tour of the pediatric ward of the hospital. The nurses showed them how to prepare enriched

milk, i.e. milk, oil and sugar. They discussed the different children that were malnourished in the hospital and their conditions. The monitrices practiced weighing children, and learned about HIV/AIDS, hygiene, scabies, worms, malaria, malnutrition and stages of child development. At the end of the week, the monitrices were given another exam. In *week 3*, the monitrices practiced delivering important health messages to staff members who pretended to be illiterate mothers. This included developing health messages into songs and holding a contest. Staff then gave feedback on how to more effectively deliver the message. The monitrices also practices house visits to practice PDI and a 24-hour diet recall. In *week 4*, the monitrices discussed the PD findings and the diet recall. They participated in a market exercise where they were given 50 gourds to feed 4 children (approx. \$1.50, working out to \$.25 per head). They had to create a menu with 800 calories, 27 grams of protein, one iron source, and a source of vitamin A. The monitrices found that they could buy so much more food than they actually needed with this amount of money. The program now has two sets of menus because some foods are only seasonally available. In *week 5*, the monitrices graduated and were given a certificate. They were then sent out to the villages where they started Hearth sessions. Staff reviewed the roles of the monitrice, mère volontaire, mère participant, and village health workers so their roles would be complementary and they would not “step on each others toes.”

Each Hearth cycle took 5-6 weeks. In week 1, monitrices distributed albendazole and made house visits. In week 2, they trained the volunteer mothers for 3-5 days. The Hearth lasted for 10 days over a 2-week period. Supervisory home visits were conducted in week 5 and 6.

The Ti Foyer (Hearth) Agenda lasted 2hrs/day with some basic requirements. Everyone had to participate in the educational discussions. While there were basic lessons, if there was a specific issue to address in that area, for instance malaria, that could become the topic for the next session’s discussion. The caretakers would then discuss the menu for the next day. After the first week, some mothers didn’t want to bring such a large amount of food because it may be more than their family would eat in a week. There were some arguments about food, which were resolved by working in occasional contributions of other things like pots, water, etc.

There were a few children that went through Hearth twice; the majority participated in the 10-day session. Fathers were generally not in attendance, although an occasional father brought the child.

Children’s weights were taken 1-3 days prior to the first day of the Hearth, then again on Day 10 (the final day) of the Hearth. Weights were taken again at a one month, two month and six month interval. Findings of the case control (n=35) showed a positive improvement. Sixty-eight percent of the children in the Hearth grew faster than the standard median rate after one month. Weights of 40% of the children continued to increase after the second month and 66% were still doing well after the sixth month post Hearth.

## **Group Discussion About the Haiti Example**

### **Training**

The monitrices passed a relatively hard exam. The project paid them a bonus if they found malnourished children to participate in Hearth. Monitrices received \$400 / six months of work, which is a very low cost to us, as we don't provide anything. The highest cost was the training, as we brought in five women from the mountains and provided room and board for six weeks. This creates a situation where a Monitrice would be trained, sign a contract, and work in their village. When it ends, they remain a resource in their community. New Monitrices will be selected in other villages. The Monitrices were often hired for other programs and other organizations, i.e. UNICEF when Hearth ended. None of the Monitrices were government employees.

### **Supervision**

Each staff covers 15 villages at a time and goes to one village every day of the Hearth. The program could easily be scaled up if there were more staff. It is tailored to the PD findings; we had very different results in the mountains, as opposed to communities close to the hospitals, so the messages were very different in different regions. Staff conducted supervisory visits at the different Hearths. They looked at attendance and quality of the key message, talked to the women involved, asked what they liked and didn't like and how they viewed the Monitrice, and had a roundtable discussion. In the first cycle we told the Monitrice when staff would be coming to visit and everyone was involved and singing. We decided to surprise them in future visits. One time staff came two days late, on day 10. No one was there because the Monitrice wasn't really following the program. We addressed it by relieving her of her position. There is a need to conduct unannounced quality visits. Supervision is the key in Haiti.

### **Volunteer Incentives**

In the first cycle the volunteer mother had a lot of responsibility and there was some tension because the mother knew that the Monitrice was paid and she was not. We provided small incentives for volunteer mothers that motivated her to host the Hearth. Monitrices became respected members of the community. Post program, many were offered jobs in the community.

### **Health Education Messages**

In Haiti, the messages were simple: get vaccinated, breastfeed as often as possible. Six out of the ten days have to have a key message.

### **Attendance**

Only 51% of participants followed through the entire program at the beginning. Time commitment was a huge issue at 2 hours every day. We also worked to get the fathers involved and had to market it differently, because some men became offended at the idea that they were incapable of feeding their own family. The program was better marketed as a "mother education program". Once that was done, participation rose to 106%. There was also a micro-credit program; if the mothers attended every day of Hearth, they were eligible to participate in the micro-credit bank. This had an incredible effect on participation. Hearth was also added for older children (5-8 years old), because there were no programs addressing the

older malnourished children, and the mothers asked for it. Two hundred children have now gone through the program. The numbers would not be as big if there hadn't been such attention devoted to the families of the children

### **Cost**

If we analyze contributions, the families contributed 80% by volume (project 20%) and 50% by cost (project 50%).

### **Discussion about some Barriers to Successful PD/Hearth Implementation based on the Haiti Example**

Several important quality issues were raised through this case that require careful planning and monitoring. These include reaching and identifying the newly malnourished; sufficient training especially of the doctors, nurses and supervisory staff; good quality training of volunteers; focusing on PD/Hearth and not adding-on PD/Hearth to other program activities with insufficient enough time and attention; ensuring there are no more than 5-10 mothers / caregivers with their children in any Hearth session; and ensuring that the Hearth is neighborhood based and not in a distant location.

### **Supervision and Monitoring**

Supervision was raised as a major issue in most PD/Hearth programs. In Haiti, daily supervisory forms and home visits were used. Counterpart staff in India were stretched thin, and the quality suffered. There was no follow-up supervision in a Mali program after the external consultant left and the quality of the program suffered as a result. It would be interesting to do a case study on the difference that quality checking has on the programs. It would also be interesting to compare what the minimum acceptable rehabilitation level of 1 million children is as opposed to great quality rehabilitation of 250 children.

The experience of seeing a child rehabilitate in two weeks is strong. In Vietnam, a study found that younger siblings in participating Hearth families were much better off in terms of height and weight. The mothers continued to practice the Hearth behaviors because they had seen that they worked; they adopted and kept them. We need to focus on what specifically makes these programs work and set essential monitoring criteria around these components to help ensure program success.

### **Labor Intensity**

Many organizations are afraid of the labor intensity of PD/Hearth. This is a perceived barrier in Title II programs implementing Hearth. PD/Hearth programs require a major time and resource commitment and cannot just be an "add-on" program. However, once staff are trained and have experience, it becomes possible to scale up and requires much less daily management. Supervisory staff need to be dedicated to Hearth and cannot be fulfilling multiple other functions.

### **Size of Hearth Session**

More mothers understood the message when there were approximately 5-10 women in each group. The women can bond and feel they are in a "safe" environment, but when there are 20

mothers that doesn't happen. We should specify 5-10 mothers/caregivers, because one woman may bring quite a few children. Having closer to ten spreads out the food contributions, making them less burdensome. The Hearth also works much better in neighborhood settings, where the caregivers do not have to travel great distances to attend, and may not know other participants.

## **METHODS, INTERVENTIONS and RESULTS of a PD / HEARTH PROGRAM**

### **Presentation by David Marsh and Kirk Dearden**

David Marsh provided highlights from the "VISION Project" (Vietnam Study to Improve Outcomes In Nutrition), a partnership between Save the Children, Emory, AED, and the Research and Training Centre for Community Development in Hanoi. The study was made possible by USAID and the Linkages project. Seventeen papers describing this study and PD / Hearth experiences are published in the December 2002 Food and Nutrition Bulletin Supplement volume 23, number 4. This research endeavor began after earlier studies had shown the impact of PD/Hearth on children involved in the Hearth and had also documented sustained change among siblings of Hearth attendees. The VISION Project aimed to identify the results and causal pathways of Save the Children's integrated nutrition program, called the community empowerment and nutrition program (the precursor name to PD/Hearth). The central questions asked were: Does PD / Hearth work? And, if so, how does it work? These studies provide evidence of many of the important quality aspects of a successful PD/Hearth program.

### **Design of a Prospective, Randomized Evaluation of an Integrated Nutrition Program in Rural Viet Nam (David Marsh et al)**

Save the Children designed a longitudinal, prospective, randomized design evaluation of their PD/Hearth project in rural Vietnam, a densely populated paddy area. They selected 12 impoverished communities with documented child malnutrition, 3 comparison, and 3 intervention communes in each of 2 districts. SC had prepared trainers in November 1999 to train local health volunteers to implement the 10 month PD/Hearth. The program consisted of the following phases

1. Preparatory Phase: orient partners, obtain permission, select impact areas form implementing bodies
2. Training: TOT and training for management and implementation
3. Situation analysis: child rosters, weighing, PDI
  - The PDI consisted of identifying 4 PD children and families and 2 non-PD children and families; conducting home interviews and observations; analyzing findings by feeding, health care and child care; developing consensus on accessible behaviors, excluding "true but useless" behaviors.
4. Interventions: GMP, Hearth, de-worming, monitoring
  - The Hearth was held monthly for all malnourished children and their caregivers, 6 days/week for 2 weeks for about 8 months. The Hearth was based on adult learning

principles, requesting a contribution (the PD food) with maximum time spent on “practicing the practice”. SC de-wormed all intervention and comparison children

Researchers randomly selected 240 children 6 to 24 months of age (120 comparison and 120 intervention). They collected information on nutritional status, diet, illness, care, behavioral determinants, empowerment, and program quality, monthly for 6 months with a re-survey at 12 months. They collected most information through maternal interviews but also observed hygiene and program quality, and videotaped feedings at home. The study focused heavily on morbidity from diarrhea, which was a misstep since it was low during the study. The focus should have been on ARI. A brilliant observational method was developed to spot observations.

### **Results and Conclusion**

This was a costly and difficult study, but is one of the few effectiveness evaluations in the world conducted in an ongoing program setting. The project was able to train a field research team to exacting standards of data collection. However, there were some limitations that could have skewed the project results. The team had to make repeated visits to the same household, researchers provided de-worming and growth charts to all comparison and intervention children for ethical considerations, detergent was also provided as an incentive to all study participants, and local NGOs began activities in 3 communes during the study period. Because of these “confounding factors”, the data results are probably conservative given that these changes could have improved some outcomes in comparison communes.

### **An Integrated Child Nutrition Intervention Improved Growth of Younger, More Malnourished Children in Northern Viet Nam (Dirk Schroeder et al)**

This study looked more in-depth at the impact of PD/Hearth on physical growth of young children. Researchers randomized 6 control communes versus 6 PD/Hearth program intervention communes. Weight and height were measured monthly for 7 months and again at 12 months between December 1999 and December 2000. Analysis was done for Weight-for-age Z score (WAZ), height-for-age Z score (HAZ), and weight-for-height Z score (WHZ). Data points were input into a computerized health system, PROMIS. Slides analyzing the finding are presented in the appendix.

### **Results and Conclusion**

Overall, intervention children did not show better growth than comparison children. However, children who were younger (less than 15 months old) and more malnourished (less than -2WAZ) at baseline had significantly better growth than similarly young, malnourished comparison children. These effects were strongest during the first six-month period of the Hearth sessions. The intervention was successful in improving dietary intake and reducing morbidity. Intervention children consumed more PD food and energy than comparison children. Fewer respiratory illness were noted in intervention children. The fact that the greatest effects of intervention programs are consistently seen among younger children is due to 3 factors: growth rates (wt gain/month) are highest in early infancy, growth faltering is concentrated during the period 6-15 months of age, and it is easier to prevent growth faltering

than reverse it. This finding suggests, along with other studies such as the Guatemala study, that programs that aim to maintain and improve child growth are most successful if they focus on children under 2 years of age.

### **Effect of an Integrated Child Nutrition Intervention on Complementary Food Intake of Young Children in Rural North Viet Nam (Helena Pachon et al)**

Researchers gathered 24 hour recall data at baseline and at months 2,4,6, and 12 looking at children's consumption of non-breast milk food and liquids and child's current breast-feeding status. Dietary energy intake was calculated using the 1972 Vietnamese food composition table. In the middle of the analysis, an updated food composition table was released, causing researchers to resort data. SC's Hearth program primarily promoted four key behaviors: consumption of PD foods, increase in the quantity of foods given to a child, feeding five to six times per day, and continued breastfeeding. Slides of the data are found in the appendix.

#### **Results and Conclusion**

Intervention children consumed PD foods more frequently, ate a greater quantity of any food, consumed more energy (including breast milk), and were more likely to meet their daily energy requirements than comparison children. Some effects were observed during the intervention period, but others persisted and were evident at the 12 month follow-up. Meal consumption was increased by half a meal per day and was sustained. Complimentary feeding did not replacing breastfeeding, which is positive.

### **Effect of an Integrated Child Nutrition Program on Child Morbidity due to Respiratory Infection and Diarrhea in Northern Viet Nam (Teerada Sripaipan et al)**

The aim of this study was to determine whether SC's PD/Hearth program reduced morbidity due to diarrhea or acute respiratory infections. Caregivers were interviewed about their child's morbidity in the past 2 weeks at baseline, 2,4,6 and 12 months. Data was analyzed via multiple logistic regression.

#### **Results and Conclusion**

Respiratory illness was more common than diarrheal disease at baseline (54% vs. 6%). During follow-up, children in intervention communes had half the respiratory illness experienced by control children. Diarrhea was also lower in the intervention group, but differences were not significant. Female children had 25% less ARI than male children. Some studies indicate that because little girls play around the pot and get slipped little bits of food that are less likely to be fully cooked, they contain a little more vitamin A, which has a profound effect on ARI. The researchers concluded that the PD/Hearth program was associated with reduced upper respiratory illness, perhaps due to improved hygiene practices and/or improved micronutrient uptake.

## **Empowerment in Rural Vietnam: Exploring Changes in Mothers and Health Volunteers in the Context of an Integrated Nutrition Project (J. Hendrickson, K. Dearden et al)**

The purpose of the study was to document the extent to which health promotion strategies empower women. The research team used qualitative methods to compare self-reported changes in seven identified empowerment domains (based on a literature review) among 17 program PD/Hearth health volunteers and 20 mothers who attended Hearth sessions versus five Women's Union leaders and 5 mothers in a comparison commune. Women's union leaders were chosen because a lot of volunteers were previous union leaders. In Vietnam, power is often regarded as negative in the sense that individual decision-making is prioritized at the expense of the group. Empowerment is seen as positive only when it also benefits the family or community in addition to the individual. The seven empowerment domains were household decision-making, confidence, community support, knowledge, access to financial resources, community can solve own problems, and community can reach out to others for support.

### **Results and Conclusion**

While both participant mothers and PD/Hearth health volunteers reported increases in certain empowerment domains, the relative increases were greater for mothers than for health volunteers. Health volunteers reported changes in knowledge, confidence, relationship with community members and a sense of satisfied contribution. Participant mothers reported increased knowledge and confidence in child feeding and care practices and increased sharing of advice with others (such as mothers-in-law, neighbors, etc.) as compared to comparison mothers. This demonstrates the importance of peer messaging and support used in the Hearth sessions. This confidence in information sharing probably represents the mechanism for spread beyond the PD/Hearth sessions and the sustainability of the behaviors over time. Future research should focus on developing culturally specific understanding and measurement approaches of how and to what degree empowerment can be achieved in a given program. These tools could lead to more efficient use of resources and more effective interventions.

## **Implementation of Nutrition Education and Rehabilitation Programs in Viet Nam (Vanessa Dickey et al)**

The purpose of the study was to compare program implementation against design and to determine the relationship between the quality of program implementation and impact. Field workers observed Hearth sessions and measured the following indicators at 240 Hearth days at 59 centers during 7 months of implementation. The PD/Hearth program communes chosen combined lowland paddy areas with dense population with sparsely populated highland areas.

- Attendance (% present of enrolled);
- Size (#enrolled child-caregiver pairs);
- Food contribution (% caregivers contributing among those present and those receiving food at home);
- Food preparation (% Hearths with 1+ caregiver helping to prepare the meal);
- Meal consumption (% eating at Hearth among those who either receive meal at Hearth or at home);

- Health message delivery (% Hearths with health volunteers giving message);
- Hygiene (% caregivers demonstrating adequate hygiene); and
- Weighing (% Hearths with weighing on scheduled day).

## **Results and Conclusion**

Participation in cooking Hearth meals, washing mothers' and children's hands, and weighing were high, but attendance rates, food contributions, and health message delivery were lower than expected, with wide variation depending on the day, commune, ecology and Hearth round. Only 50% of caregivers and their child showed up at any given day. Home delivery of food to the non-attendees prevented caregivers from learning from each other in a group, but it did bring a tangible message (new food in high quantity) to the home. The active learning worked over the repetitive message delivery. Many aspects of the PD/Hearth model were implemented according to design, but other aspects were modified, of poor quality, or both. Programmers need to develop and apply simple quality indicators to track and strengthen the implementation. The poor implementation quality could have been related to the fact that these were the last Hearth sessions after several years of implementation and the sparsely populated highland areas. Despite imperfect implementation however, the PD/Hearth active learning and local problem solving helped achieve measurable impact on growth, diet, morbidity, and empowerment despite high rates of malnutrition and population dispersion.

## **PROGRAM IMPLEMENTATION ISSUES RAISED BY THE VISION STUDIES**

### ***Health Education Messages***

The studies show that message information wasn't widely helpful in Vietnam. The most effective method was focusing on what can be done today. Are the health education messages really a waste of time? Messages have to be part of the program, as they tie into the methods and structure of the lessons taught to the mothers. The Vietnam case shows that messaging depends on the training style. A message given through lecturing had no effect. But a message based on dialogue and problem solving did produce a change. Peer reinforcement through dialogue was helpful. Do more participative messages that are culturally appropriate (such as the songs developed in Haiti) have more impact? Or should all messages be immediately tied to an action, as in the case of Vietnam, to ensure more impact? We know that messages with peer reinforcement are often effective. For example there has been an increased rate of immunization in Mali because of health education with peer reinforcement.

Is the reason for differences in quality due to supervision or education? Interviews are critical to understand the reasons for poor quality. Inadequate supervision could be a cause of the poor quality because the midland populations are widely scattered and it's hard to get people together. It also could be because the commune trainers were those at the end of a cascade training plan. This data set showed that the further you got away from the people that are "powerfully" trained from the original trainers, the less effective the message was able to be taught to the end user, the mothers.

Many of the messages provided by trained health workers were not effective, since they wanted to "tell" what to do, rather than help people understand that the recipes and knowledge

came from the community. If so, one could argue that less educated persons would be more creative and better village educators. It's important to involve the volunteer health workers in all health education activities.

When questioned if they liked the programs, the fathers said they liked that their wives learned new recipes. When asked where they thought the recipes came from, they answered "doctors and nurses." The Hearth recipes were still seen as something coming from outside. It's important to emphasize the local wisdom that generated the solution to build up confidence and empowerment.

The size of the Hearth sessions mattered. Ideally 5- 10 caregivers is the best size for them to learn from each other, promote dialogue, and still be manageable.

If we emphasize asking caregivers what was the child like when she/he first came, and ask what was s/he like on the last day, and the mothers can link the Hearth practices to the "change," then it can have an effect on how the women think, feel, see and understand. The mothers observe it, but it may never be verbalized. It's important to talk to them individually to help them internalize and verbalize what has changed and what made the change happen. Hearth is about rehabilitating children and getting out practical messages in a very personal way.

### ***Role of Monitoring and Evaluation***

What are the advantages to two approaches to measuring impact: internal monitoring and external evaluation? Most programs focus on internal monitoring which is cost-effective. There was a large internal monitoring evaluation in Egypt. There was a change at the malnourished children level, but no significant change at the population level. When SC did a quality review of measurement, they found that there was some systematic under-weighting in the villages. This is another quality factor that can be periodically checked. Everyone picks a different method for evaluating: external, internal, and triangulated. The more rigorous the evaluation, the harder it is to show impact. This sometimes leads not to better work but less rigorous attempts to evaluate.

## **IMPLEMENTATION PROBLEMS IN CHILD SURVIVAL PROGRAMS**

**Notes sent by Susan Youll (USAID, CHS Grants Program)**

The USAID Child Survival and Health Grants Program and the Title II Office have been funding PVOs to implement PD/Hearth programs. Recent midterm and final evaluations have shown that PVOs have adapted programs perhaps without understanding the essential elements and critical quality control standards required. Susan highlighted some of the evaluation comments that already had been addressed in the meeting's earlier discussion, as well as other points. It again raised the need for examples, cases, and materials to be more widely distributed.

Some findings from the evaluations that negatively impacted on the program's success included:

- The project was not neighborhood based, requiring caregivers and children to travel long distances to the Hearth sessions.
- The PD / Hearth program did not take into consideration the workload of women nor the agricultural cycle.
- PD / H does not appear to work in small and dispersed communities and may be better suited to densely population rural areas or urban areas.
- When PD / Hearth was implemented in an urban mining area, people do not produce their own food and it's hard for them to contribute to a communal kitchen.
- Men did not like the women to share their household food with others.
- The strategy of providing one additional meal didn't work because the meal prepared in the group merely replaced the family lunch.
- Mothers who can't bring food did not come, eliminating the poorest families.
- Leaders become unmotivated when women did not attend.
- The social stigma of being defined as a "negative" family is obvious. A change in terminology is needed to identify "model mothers" without subsequently saying that other mothers are bad. The same applies to classifying families as rich or poor, which causes friction among community members.
- The project could not identify key practices that differ between positive and negative deviants.
- The project planned for 10-20 children under five years and their caregivers to attend a communal kitchen 14 days per month for 8 months, 2-3 hours per day to prepare food together. This was not realistic.
- Several adaptations were made with mixed success. These included interspersing months to accommodate the agriculture cycle, meeting for 3-4 days with a break of 2 days and then repeating the cycle, meeting on weekends only, instead of having all 15 mothers cook at once, rotate responsibilities so that 3-4 mothers cook each time.
- Several evaluators wrote comments that did not show understanding of the approach: For example, one evaluator wrote, "The basic outline of PD/H should include minimum criteria: identify model mothers, form groups to employ nutritional practices, meet at least once / week, identify positive practices, follow-up malnourished children." It was suggested that PVOs would benefit from having better monitoring tools and clearer implementation steps.

The group suggested that an evaluation guide might be useful for consultants who do not fully understand PD/Hearth to use when evaluating Child Survival or Title II projects that include PD/H. This would be helpful in standardizing the essential elements.

## **PD /HEARTH TOOLS AND MATERIALS**

Several tools and materials have been developed by various organizations to guide program implementation. (Please refer to Appendix 4.) The original training guide, "Field Guide: Designing a Community-Based Nutrition Program Using the Hearth Model and the Positive Deviance Approach" written by Monique and Jerry Sternin and David Marsh, is still in high demand. Several organizations have prepared PD/Hearth training manuals in English, Spanish, Portuguese, French and Haitian Creole based on their experiences, but these guides / manuals

have neither been reviewed for technical content nor widely disseminated. CORE is just finalizing a two year project of writing and rewriting a guide entitled “PD/Hearth: A Resource Guide for Sustainably Rehabilitating Malnourished Children” based on the Sternin guide and multiple field experiences. CORE is expecting that this guide will be finalized in early 2003. The BASICS Project with Save the Children recently produced a video describing the Vietnam experience and key steps in PD/Hearth implementation, but this video has not yet been disseminated. And, David Marsh, Dirk Schroeder and Gretchen Berggren were the editors of seventeen papers in a Food and Nutrition Bulletin supplement entitled “The Positive Deviance Approach to Improve Health Outcomes: Experience and Evidence from the Field” that was released in December 2002, which provides needed quality information on critical factors in the implementation of PD/ Hearth programs.

It is critical that quality information be widely distributed so that each implementing organization does not need to repeat the learning cycle but can build upon better practices. However, some of the manuals provide different advice from our main findings. They were developed in absence of disseminated materials and experiences. Could there be some vetting, to see which materials should be accepted?

We should emphasize the materials and publications that we support based on recent findings etc. Some of those materials might be used for PD, and others for Hearth. A “manual” will never be enough. A way to share more concrete examples and experiences is needed. Even though PD / Hearth is a flexible and adaptable approach, some countries (i.e. Madagascar) preferred more absolute instructions. The materials themselves may not be conclusive enough. Consultants and specialists with a lot of field experience will still be needed to help others get used to and comfortable with these programs, and better understand what is critical and what can be adapted.

### **Recommendations to Improve Dissemination of Quality PD/Hearth Programs**

- Encourage cross-visits.
- Promote and translate a set of acceptable PD / Hearth guides. Based on our knowledge, these include the original SC/BASICS manual, the new CORE guide, the WV Canada Spanish manual from Guatemala, and the Save the Children manual in French out of Mali.
- Work with BASICS II to disseminate the PD / Hearth video. It has been reviewed and found useful as a tool for HQ staff, and has also been used as a training tool and field-tested in India. The feasibility of dubbing this video in French and Spanish should be assessed. Order at least two videos per headquarters/per CORE member with extras for consultants for a total of 50 NTSC and 50 PAL.
- Disseminate the CORE manual to each CORE member (2 for HQ staff) and then produce a large quantity on CD-Rom for the field. CORE should also try to find funding to translate the guide into French and Spanish.
- Ask Kathryn Bolles to translate the Haiti training guide from Creole to English for broader dissemination.
- CORE should include all “approved” manuals / guides on its website. A request will be sent to all organizations to submit their materials for vetting.

## **INTRODUCTION to PD / HEARTH MEAL CALCULATOR SOFTWARE**

### **Presentation by Tom Davis, FHI via telephone**

Tom has used a Pocket PC for monitoring the results of Hearth sessions. FHI is starting to use Pocket PCs for this end; they began at a 3-day workshop in October 2002 and are field testing the software in Kenya and Bolivia this year. The cost of a good unit has significantly declined to approximately \$250 plus a \$50 128 MB memory card. Tom recommended Pocket PCs over the Palm Pilots because of the software capability. Tom has developed PH Creations software that can be modified to fit an organization's specific needs. Tom has developed a Hearth Nutrient Calculator and a Hearth Quality Checklist.

The Nutrient Calculator has a data base that can be transferred to Excel, and includes a pull down list of the most common foods in developing countries, as well as nutrient lists from the USDA website. It has 6000 foods and 40 different nutrients. The calculator figures out calories, cost, and nutrients for a specific food and menu. The program will then calculate the meal content, weight, adequacy, and what is missing. It will provide a specific error message, and hotlink back to the beginning to modify parts of the meal. Currently it calculates calories, proteins, vitamin A and weight, but it would be fairly simple to add in other fields for micronutrients, etc. The last page calculates a meal score and calculates each portion etc.

The Hearth Quality Checklist program monitors mothers' practices and children's weight gain in a program. Data begins with the first date, followed by the z score, the next change of the z score, change in the weight, interpretation of the weight change (in green letters if it was a good change). It also tells if the child is severely malnourished, obese, the percentage median of the child, and the change in growth percentage after two months. Variables such as breastfeeding, # times fed, # snacks, are also calculated. When the date is logged, it calculates the children's ages exactly and it calculates an exact nutritional status. With the program, health workers in the field can take action immediately. They can sort files. For example, children can be sorted by variables such as weight score; children needing follow up; and children that have gained weight at each 2-month mark. The Hearth Meal Calculator and the Hearth Quality Checklist are relatively cheap – i.e. \$10 and \$14 each. Tom also distributed a “nutrients block” exercise for teaching composition of Hearth meals (which can be found in Appendix V).

## **PRIORITIES FOR FUNDING RESEARCH GAPS**

The group discussed several research needs to further the body of knowledge of PD/Hearth programming. After the discussion, the list was synthesized, and then votes were taken to arrive at the top 3 funding priorities. Because of limited time, this list was created quickly and would benefit from further thought and analysis.

- First Priority: What are the effects of Hearth programs on non-Hearth neighbors? Does dissemination by satisfied Hearth users impact their neighbors' behavior? David Marsh

estimates that this data exists and would require approximately 8 weeks of work..

- Second Priority: What other effects beyond nutrition and mortality does PD/Hearth impact to the child and younger siblings, i.e. literacy and child development outcomes? David Marsh estimates that this would be expensive because of the confounding variables and require over 12 weeks of effort, but valuable. (Perhaps UNICEF India could also be involved given their involvement in promoting PD / Hearth in India).
- Third Priority: Support Save the Children to analyze additional data that they have already collected to deepen our understanding of minimal quality variables affecting positive behavior. David Marsh estimates this will take approximately 4 weeks.

Other Priorities (not in any specific order)

- Does participation in PD / Hearth improve use of health services? (Estimated at 4 weeks level of effort)
- SC could consider going back and analyzing a child survival program that used PD/Hearth to retrospectively look at the long-term effects of their other PD/Hearth programs (for nutritional status, deaths, younger siblings). Perhaps an intern or BASICS could study the Vietnam area 2 years after the program ended to collect this data, using the current data as baseline.
- How do individual program elements specifically affect behavioral determinants, behavioral change, diet and illness? (Estimated at 4 weeks)
- Does understanding the concepts of PD lead to behavior change?
- What specifically is responsible for impact on nutritional status? (Large study needed)
- Information should be collected on the use of PD/Hearth in food insecure settings and a workshop held to discuss experiences and findings. More research is needed on Community Therapeutic Care that should be identified once the current studies are finalized.
- A study should be undertaken to look at whether PD/Hearth, and in what modified form, could be used to impact stunting as an outcome (or proxy indicators)?
- A systematic investigation of the cost effectiveness of PD/H implementation should be undertaken. The cost of PD/Hearth programs should be compared and contrasted to alternative sustainable nutrition rehabilitation programs. Look at areas such as cost of the program overall and cost to beneficiary. What is the minimum quality level needed to achieve a positive outcome. This is key to helping develop a strategy for program expansion. (A Health Economist, such as Hugh Waters, would be needed to help).

- Guidance is needed on PD/Hearth in urban settings where food availability is limited and the cash economy is stronger than in rural areas. Should PD/Hearth be proposed? Should PD/Hearth be tried in transient and begging communities?
- We have recommended that Hearth sessions be conducted in groups of 5-10 caregivers. This is based on anecdotal information rather than quantitative information. Should we clarify that this is the standard base number of caregivers?

## **NEXT STEPS**

- Develop 1-page concept papers to look into each research project that could be accomplished with further analysis of the Viet Nam data. Add level of effort and cost figures. Disseminate to possible funders (FANTA, BASICS, CORE, foundations) - Kirk Dearden
- Organize a discussion forum on the interaction between food aid and PD / Hearth. How is food best used in food insecure areas? (Karen Lapping may be able to organize on a web discussion page).
- Develop Quality Assurance Forms for PD/Hearth program staff and supervisors (i.e. do calories in the meal add up to 800 calories?) (Vanessa Dickey based on the Save the Children experience)
- Offer a 2 day PD / Hearth TOT or “How to” workshop in early spring in the Washington DC area for PD implementers (CORE Nutrition Working Group and Secretariat)
- Host a TAG meeting on use of PD / Hearth in emergency settings (Community Therapeutic Care). (FANTA)
- Encourage cross visits between projects (PVO HQ Staff, USAID CSH Staff)
- Compile more information (matrix) on use of PD/Hearth in urban areas for PVOs to respond to. (Waverly Rennie)
- Finalize, list, exchange and disseminate PD/Hearth Materials to date. This includes collecting and vetting materials, posting of exiting materials on CORE Website, as well as dissemination of the new manual and the video to HQ staff for dissemination to field staff. (CORE- manuals; BASICS – video). Karen, Lynette, and Judiann
- Refine the key questions identified in research gaps. (David Marsh and Kirk Dearden)
- Positive Deviance can also be used a framework to investigate other health actions and the idea of the Hearth approach can be used as the forum to practice new behaviors. Share more information on how these 2 approaches can be used in non-nutrition settings. (Sternins)

- Resuscitate the PD / Hearth listserv to promote program exchanges. (CORE)
- Develop a descriptive map of PD/Hearth program approaches. The map would list location, population, # staff used, degree of malnutrition, # iterations needed, results (and possibly other categories). (CORE Nutrition Working Group)
- Develop a scorecard for PD/Hearth quality to help implementers monitor quality and to link quality with program effectiveness. (David Marsh)

## APPENDIX I

### **Agenda for CORE PD/Hearth Meeting**

December 5, 2002                      8:45am to 5:00pm

Academy for Educational Development / FANTA  
1825 Connecticut Avenue, NW (South Entrance) 8<sup>th</sup> Floor  
Washington, DC

#### **Meeting Objectives:**

- Come to consensus on essential elements of PD/Hearth in Program Design and Implementation
- Summarize experience and lessons learned to ensure quality of PD/Hearth Programs
- Exchange results related to impact measurement of PD/Hearth Programs
- Identify information gaps to prioritize further research and generate knowledge
- Define next steps

#### **Schedule:**

- 8:45     Registration
- 9:00     **Welcome/Objectives/Agenda review**  
**Mapping of PD/Hearth in CS programs**  
(Facilitator Paige Harrigan/FANTA)
- 9:45     **Key Elements of PD/Hearth for Program Design and Implementation**  
(Judiann McNulty)
- 10:15    Break
- 10:45    **Program Description of PD Hearth Programming**  
(Presentation by Kathryn Bolles followed by group exchange of experiences)
- 12:15    Lunch
- 1:15     **Methods, Interventions and Results of a PD/Hearth Program: VISION**  
(David Marsh and Kirk Dearden followed by group exchange of experiences)
- 3:00     Break
- 3:30     **Introduction to PD/Hearth Meal Calculator Software**  
10-minute presentation by Tom Davis, FHI
- 3:45     **Status report of PD/Hearth Materials to Date**  
**Identification of Information / Research Gaps in PD/Hearth**
- 4:30     **Next Steps**
- 5:00     Meeting close

## APPENDIX II: Participant List

### CORE PD/Hearth TAG Meeting

Name	Organization	E-mail
Juan Carlos Alegre	Project Hope	<a href="mailto:jcalegre@projecthope.org">jcalegre@projecthope.org</a>
Gretchen Berggren	Independent	<a href="mailto:gberggren@aol.com">gberggren@aol.com</a>
Kathryn Bolles	CCMH	<a href="mailto:kbolles@cmmh.org">kbolles@cmmh.org</a>
Bart Burkhalter	URC	<a href="mailto:bburkhalter@urc-chs.com">bburkhalter@urc-chs.com</a>
Tom Davis*	FHI	<a href="mailto:tdavis@fhi.net">tdavis@fhi.net</a>
Ciro Franco	BASICS	<a href="mailto:cfranco@basics.org">cfranco@basics.org</a>
Meron Getnet	CCF	<a href="mailto:mgetnet@ccfusa.org">mgetnet@ccfusa.org</a>
Hannah Gilk	PSBI	<a href="mailto:hgilk@pearl-s-buck.org">hgilk@pearl-s-buck.org</a>
Becky de Graaff	ADRA	<a href="mailto:Becky_degtraaff@adra.org">Becky_degtraaff@adra.org</a>
Quentin Dean	CORE	<a href="mailto:kchesnut@worldvision.org">kchesnut@worldvision.org</a>
Kirk Dearden	Brigham Young U.	<a href="mailto:Kirk_dearden@byu.edu">Kirk_dearden@byu.edu</a>
Paige Harrigan	FANTA	<a href="mailto:pharriga@aed.org">pharriga@aed.org</a>
Michelle Kouletio	Concern Worldwide	<a href="mailto:Michelle.kouletio@concern-ny.org">Michelle.kouletio@concern-ny.org</a>
Karin Lapping	Save the Children	<a href="mailto:klapping@savechildren.org">klapping@savechildren.org</a>
Karen LeBan	CORE	<a href="mailto:kleban@worldvision.org">kleban@worldvision.org</a>
David Marsh	Save the Children	<a href="mailto:dmarsh@savechildren.org">dmarsh@savechildren.org</a>
Judiann McNulty	Mercy Corps Int'l.	<a href="mailto:jmcnulty@mercycorps.org">jmcnulty@mercycorps.org</a>
Melanie Morrow	World Relief	<a href="mailto:mmorrow@wr.org">mmorrow@wr.org</a>
Michel Pacqué	CSTS	<a href="mailto:Michel.c.pacque@orcmacro.com">Michel.c.pacque@orcmacro.com</a>
Kamal Raj	IRC	<a href="mailto:raj@intrescom.org">raj@intrescom.org</a>
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Waverly Renniey	URC	<a href="mailto:wrennie@urc-chs.org">wrennie@urc-chs.org</a>
Donna Sillan	Independent	<a href="mailto:dmsillan@attbi.com">dmsillan@attbi.com</a>
Jerry Sternin**	Independent	<a href="mailto:Jerry_sternin@hotmail.com">Jerry_sternin@hotmail.com</a>
Monique Sternin**	Independent	<a href="mailto:Monique_sternin@hotmail.com">Monique_sternin@hotmail.com</a>
Lynette Walker	CORE	<a href="mailto:lwalker@worldvision.org">lwalker@worldvision.org</a>
Susan Youll***	USAID	<a href="mailto:syoull@usaid.gov">syoull@usaid.gov</a>

Note: \* Tom Davis attended the meeting via phone, as inclement weather in Washington, DC caused flight cancellations.

\*\*Monique and Jerry Sternin participated in the meeting via e-mail as an emergency medical situation kept the Sternins abroad longer than anticipated.

\*\*\* Susan Youll participated through e-mailed comments due to the inclement weather.

**APPENDIX III: List of PD/Hearth Program Implementation Sites (11/25/02)**

<b>REGION</b>	<b>COUNTRY</b>	<b>ORGANIZATION</b>	<b>CONSULTANTS</b>	<b>YEAR IMPLEMENTED</b>
<b>AFRICA</b>	Angola	Concern Worldwide		
	Burundi	Concern Worldwide		
	Egypt	Save the Children	J. &M. Sternin	1998-current
	Eritrea	Concern Worldwide		
	Ethiopia	Christian Children's Fund	Donna Sillan	1999
		Concern Worldwide		
		Food for the Hungry		
	Guinea	ADRA		
		Africare		1998-2000
		Peace Corps		
	Kenya	Food for the Hungry		
	Malawi	World Relief w/ CCAP		2002 (on-hold)
		Concern Worldwide		
	Mali	CARE		1999-current
		Save the Children	Monique Sternin	1999
		WV		2003
	Mozambique	Save the Children	Monique Sternin	1997
		World Relief		1997/2001( initiation in different districts)
		Africare		1998
		Concern Worldwide		
CARE			written into Mozambique Title II and CS	
Food for the Hungry				
Rwanda	Concern Worldwide			
Senegal	Basics/WV	Monique Sternin	1999-current	
Tanzania	Africare		2001	
<b>ASIA</b>	Bangladesh	World Relief	Donna Sillan	1997 (Final CS Evaluation)
		World Relief/Christian Service Society		1995-current
		Save the Children		1998
		Concern Worldwide		

<b>REGION</b>	<b>COUNTRY</b>	<b>ORGANIZATION</b>	<b>CONSULTANTS</b>	<b>YEAR IMPLEMENTED</b>
<b>ASIA</b>	Bhutan	Save the Children	Monique Sternin	1998-current
	Cambodia	CARE		1997/1998
		Partners in Development	Monique Sternin	2001-current
		Red Barna		1997
		WV		2002
		ADRA		
	India	Counterpart Int'l	Donna Sillan	2002
		World Vision		2003
	Indonesia	Path/Save	Jerry Sternin	2002
		PATH		part of CS project
		Mercy Corps, Inc.	Donna Sillan	2000
	Mongolia	World Vision		2003
	Myanmar	World Vision	Monique Sternin	2001
		Save the Children	J. & M. Sternin	2000-current
	Nepal	CARE		just starting
		CECI		
		LNGO		
		Redd Barna		
		PLAN International		
		Save the Children/Japan		
Save the Children Alliance		Monique Sternin	1998	
Pakistan (refugees)	Save the Children			
Philippines	Pearl S. Buck		2000-current	
Sri Lanka	Christian Children's Fund	Donna Sillan	1998	
Vietnam	Save the Children	J.&M. Sternin	1991-current	
	PLAN International			
West Bengal/India	Unicef/CINI/ICDS	Monique Sternin	2001-current	
<b>LAC</b>	Bolivia	Save the Children	Jerry Sternin	2001
		Food for the Hungry		
	El Salvador	WV		2001
	Guatemala	WV/Canada		1999-ongoing
Haiti	Save the Children	M. Sternin/ G Berggren	1990-1999; 2002-current	

<b>REGION</b>	<b>COUNTRY</b>	<b>ORGANIZATION</b>	<b>CONSULTANTS</b>	<b>YEAR IMPLEMENTED</b>
<b>LAC</b>		FOCAS		1999-2000
		Hopital Albert Schweitzer		1993-current
		ADRA		2000
		Christian Medical Mission	G. Berggren	ongoing
	Honduras	WV/Canada		1999-current
	Mexico	WV		2002
	Nicaragua	WV/Canada		2001
	Peru	CARE		written into Peru project
	WV/Canada		in planning	
<b>EURASIA</b>	Tajikistan	Save the Children	Monique Sternin	2000-current
	Data based on:	<i>Self reports, CORE Benefit Survey (10/02), PD/Heath TAG Meeting (4/00)</i>		

#### **APPENDIX IV: List of PD/Hearth Materials Displayed at Meeting**

BASICS II. Hearth Technical Advisory Group Meeting, April 11-12, 2000.

Berggren, Gretchen M.D., with assistance from M. Moreaux, nutritionist with Save the Children/Haiti. Hearth/Positive Deviance Approach to Combating Malnutrition in Haiti: – “Ti Foyers” in Haiti; Report on Field and Visit and Workshop at Deschapelles. Dates: Sep. 10 – 19, 2002.

CORE Nutrition Working Group. Positive Deviance/Hearth: A Resource Guide for Sustainably Rehabilitating Malnourished Children. August 2002.

Cribbin, Melissa. Application of a Positive Deviance Inquiry in the Oruro Altiplano. Masters Thesis, Emory University, April 2000.

Davis, Tom Jr. Early Hearth Results in FHI/Mozambique’s Program (two districts reporting). Food for the Hungry International.

Davis, Tom Jr. Positive Deviance Workshop Training Notes (Hearth Methodology/Model Farmer Program). Food for the Hungry International. December 5, 2002. Available in English, Spanish and Portuguese.

Fundación Vision Mundial Guatemala (FVMG). Evaluación Nutricional. Programa “Corazón en Familia.” Guía de Implementación para Grupos Comunitarios. February 2002.

Fundación Vision Mundial Guatemala (FVMG). Plan de Capacitación a Madres Guías. Programa “Corazón en Familia.” February 2002.

Fundación Vision Mundial Guatemala (FVMG). Programa “Corazón en Familia.” Guía de Implementación para Grupos Comunitarios. February 2002.

Marsh, David and Monique and Jerry Sternin. Designing a Community-Based Nutrition Program Using the Hearth Model and the Positive Deviance Approach – A Field Guide. Save the Children. December 1998.

Save the Children. Positive Deviance and Nutrition Education and Rehabilitation Programs. A Field Manual for Use in West Africa.

Save the Children, Sahel Field Office, with support from BASICS II, CARE, Save the Children Canada, and Africare. Positive Deviance Approach Workshop. Bamako, Mali. November 21-24, 2002.

Save the Children/US, Vietnam Field Office. Training of Trainers Manual. Positive Deviance Poverty Alleviation and Nutrition Program. November 1997.

Video: PD/Hearth. Finding Community-based Solutions to Malnutrition. BASICS II, USAID and Save the Children. PAL & NTSC. 37 min.

Photographs.

**APPENDIX V**  
**“Nutrient Blocks” Exercise for Teaching Composition of Hearth Meals**  
 by Tom Davis, MPH

This exercise can be done with mothers to have them participate in the development of Hearth meals, and to learn visually which foods have more protein, calories, and vitamin A. This exercise has been used successfully in five countries (Haiti, Kenya, Ethiopia, Bolivia, and Mozambique).

**Making the Nutrient Blocks**

For this exercise, you need to develop a table in such a way that it gives the relative sizes of three different types of blocks: calorie blocks, protein blocks, and vitamin A blocks.

To do this, start with an Excel table of nutrient values for the foods that are in use in your project area.

Nutrient values can be found for most foods at: <http://www.nal.usda.gov/fnic/foodcomp/index.html>. That database includes information on 90 nutrients for 18,589 food entries. You can also download the entire database and search it offline (great for developing countries) by downloading the free NutriBase software from <http://www.nutribase.com/sr13.shtml>.

You can then create a file in MS Excel<sup>1</sup> following this format, leaving the block sizes blank for now:

Food	Portion Size/ 100g	Cals per 100g	Cals per portion	Cals Block Size	Protein per 100g	Prot. Per portion	Protein Block Size	Vit. A per 100g	Vit. A per Portion	Vit. A Block Size
Banana (1 small)	1.13	92	104		1.0	1.13		82	93	

You may have to weigh or measure some items to determine the best serving size. Put in all of your foods in the Excel sheet. Now use the following formulas to calculate the block sizes:

- Calorie Block Size = Calories in portion / 19.5
- Protein Block Size = Protein in portion / 0.555
- Vitamin A Block Size = Vitamin A in portion / 111
- For block sizes that exceed 36”, just make a 36” long block with a pointed top (and explain that the true size is much larger when using the block). This happens quite often with some of the Vitamin A blocks.

Adding in these formulas, you should get

Food	Portion Size/ 100g	Cals per 100g	Cals per portion	Cals Block Size	Protein per 100g	Prot. Per portion	Protein Block Size	Vit. A per 100g	Vit. A per Portion	Vit. A Block Size
Banana (1 small)	1.13	92	104	5.3”	1.0	1.13	2.0”	82	93	0.8”

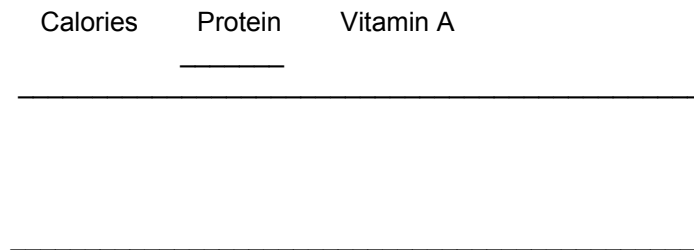
Once you have the block sizes, you will need to make the blocks representing the three nutrient values for each food. Its best to use three different colors of paper to make it easier to keep the nutrients separate. For each food (e.g., banana), make one block in purple representing the calories (e.g., 5.3”), one in red representing protein (e.g., 2.0”), and one in green representing Vitamin A (e.g., 0.8”). Write the food name on each of the three blocks in large letters (for each food). For non-literate groups, place a drawing of the food on the largest of the blocks. For very small blocks (e.g., < 0.5”), just use a standard size that is small (e.g., 0.25”), but large enough on which to write. When you are through, you should have a set of three blocks for each food (ingredient).

<sup>1</sup> I have copies of these Nutrient Block excel sheets for selected foods used in Haiti, Mozambique, Bolivia, Kenya, and Ethiopia. If you would like a copy of one of these to use as a starter sheet, please e-mail me at [tdavis@fhi.net](mailto:tdavis@fhi.net).

The educators can get together to make their blocks so that it is not too much of a burden on any one staff person. On the back of the block, they should write the portion size and the nutrient content that each block represents. (For example, on the back of the red beans protein block, it would say, "10.4g protein per 2/3 cup serving." They could stick the blocks up using clear tape, or you can use a type of mounting putty that can be bought at some office supply stores and reused. (It's the type of putty used to put up posters in dorm rooms where you are not allowed to put nails in the wall.)

**Using the Blocks**

To do the exercise, you put a line on a blackboard or wall, and write three headers above the line about 48" up: Calories, Protein, and Vitamin A. Draw another horizontal line 36" above the lower line. Draw an additional line 11" above the second line, but just above the protein column. It would look something like this.



Explain to the group that the purpose of the exercise is to come up with a meal that has 600-900 calories. They will know that the meal has 600 calories if the purple blocks stack up to the first upper line. But they also need to make sure that it has between 20 and 26 grams of protein. They will know that the meal has at least 20 grams of protein if the red blocks stack up the first line. If they do not go past the second line, then they will know that it has less than 26 grams of protein. And lastly, they need to make sure it has at least 4,000 units of Vitamin A. They will know that it has 4,000 units or more if they get the green blocks up the upper line. Some mothers will understand that part, and some will not, but a lot more will understand it visually after they see the exercise.

At this point, have the participants choose one of the foods mentioned by the mother of a positive deviant child. Let's say it was cooked red beans (2/3c). You would put up the purple (calorie) block which says "Red Beans" on it and is 7.8" tall. Then you put up the red (protein) block for red beans which is 18.7" tall. Then you put up the vitamin A block which is only about 0.25" tall -- really 0, but you want to put up three blocks for each food so that it will not get too confusing.

Then you ask the group to pick another food that they could put with the beans. Let's say that they select Maize. You stack the purple calorie block for Maize on top of the other purple block for Red Beans. (That block is 19.1" tall, so added to the Red Beans calorie block, you should now have a tower of blocks that is 26.9".) Then stack the Maize red block (which is 15" tall) on top of the Red Beans red block. Then stack the Maize green block (which is 4.2" tall) on top of the Red Beans green block.

At this point, you should point out that they are still about 9" short of the calorie line, only about 2" below the protein line, and way below (32") the vitamin A line. Prompt the group for a vitamin A food. Someone will eventually mention a high Vitamin A food, let's say pumpkin. Ask if this food can be added to the other ingredients to make a good tasting meal. (Let's assume that they agree.) You then stack up the three blocks for pumpkin, and the group members will see that they are still short of calories, protein, and vitamin A.

Let's say you prompt for another vitamin A food, and the group members mention Mango. You stack up the three blocks for Mango. At this point, they see that they have surpassed the Vitamin A and (first) protein line, but are still short on calories. You prompt for a high-energy food, and someone eventually mentions oil (which they use when cooking the maize, anyway). You suggest a 2 tsp serving be added,

and stacks up the blocks for oil. At this point, they are above the calorie line, between the two top protein lines, and above the vitamin A line. It would look something like this.

Calories	Protein	Vitamin A
		xxxxxx
xxxxxx	xxxxxx	xxxxxx
xxxxxx	xxxxxx	xxxxxx
xxxxxx	xxxxxx	xxxxxx
yyyyyy	xxxxxx	xxxxxx
yyyyyy	xxxxxx	xxxxxx
yyyyyy	xxxxxx	xxxxxx
zzzzzz	yyyyyy	yyyyyy
zzzzzz	yyyyyy	yyyyyy
zzzzzz	yyyyyy	zzzzzz
zzzzzz	zzzzzz	zzzzzz

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If they wanted to boost the calories a bit more, they could add in banana to the mango for a snack.

Repeat the exercise several times. Have the mothers suggest different foods as the “base”, protein, and vitamin A foods until they can successfully put together a Hearth meal by themselves using the blocks. Songs can be useful to help the mothers remember the ingredients in each recipe.

Tom Davis, MPH  
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