Learning for Leverage:

Scaling up from a CSP Final Evaluation with Lessons to Meet New Challenges in the Future

Light for Life Cost Extension Child Survival Project
World Relief Cambodia

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LIST OF ACRONYMS

CC	Commune Council
CDD	Control of Diarrheal Disease
CE-CSP	Cost Extension Child Survival Project
CG	Care Group
C-HIS	Community Health Information System
C-IMCI	Community Integrated Management of Childhood Illness
CS	Child Survival
CSP	Child Survival Project
DIP	Detailed Implementation Plan
EOP	End of Project
EPI	Expanded Program for Immunization
HC	Health Center
HF	Health Facility
HIS	Health Information System
HQ	Headquarters
IMCI	Integrated Management of Childhood Illness
KPC	Knowledge, Practices, and Coverage
MCH	Maternal and Child Health
MOH	Ministry of Health
MTE	Midterm Evaluation
NGO	Non-Governmental Organization
ORS	Oral Rehydration Solution
ORT	Oral Rehydration Therapy
SPY	Sokahpheap Phum Yoeung "Our Healthy Villages"
TT	Tetanus Toxoid
USAID	United States Agency for International Development
VL	Village Leader
WHE	Woman Health Educator
WHO	World Health Organization
WR	World Relief
WRC	World Relief Corporation

A. EXECUTIVE SUMMARY

The "Light for Life" Cost Extension Child Survival Project (CE-CSP) is a collaborative partnership between World Relief Corporation (WRC)/United States Agency for International Development (USAID), the Ministry of Health (MOH) of Cambodia, and the communities of Ponhea Kriek/Dombai District in Kompong Cham Province. The project is located about 5 hours drive northeast of Phnom Penh on the Ho Chi Minh trail, close to the border of Vietnam. The beneficiary population includes 46,128 women of reproductive age (15-49 years) and 20,344 children under the age of five. The total population for the operational district is 184,642. The CE-CSP seeks to improve the health status of women and children by educating families to make timely and appropriate health choices and to strengthen the capacity of the health system to provide appropriate and quality care.

Main Accomplishments

The first year of the "Light for Life" CE-CSP was dedicated primarily to rapid orientation and scale up of program activities to an extended project area upon the completion of the original child survival project (CSP) coverage area. But it was in the second year of the extension that the technical support team saw remarkable growth and maturing of this program now staffed and managed entirely by Cambodian nationals. Under the leadership of Program Manager, Sivan Oun, a female medical assistant from Ponhea Kriek District who was trained and mentored by an expatriate program manager during the original "Light for Life" project and assisted by Health Advisor, Geof Bowman in the CE-CSP, the project had ready met or surpassed all but two of the End of Project (EOP) goals by the close of its second year.

By the time of the Midterm Evaluation (MTE), the "Light for Life" CE-CSP was noted to have made remarkable progress in meeting its intervention objectives with marked improvements even beyond the MTE expected results. In addition to maintaining its excellence toward the technical intervention objectives, there had been considerable progress toward strengthening the organizational relationships and developing the human resources who are the sustaining element for improved maternal and child health in the community. The key elements have been: (i) empowerment of the volunteers, (ii) leadership development of the staff, (iii) self-sufficiency of the Care Groups (CGs) and (iv) increased ownership of health issues by the Commune Councils and village leaders.

One of the major highlights of this project has been the development and growth of real empowerment and equity for women who have been in engaged as Women Health Educators

(WHEs)[1]. It can be said that they are the bedrock of this CSP. A remarkable increase in confidence among the WHEs can be observed not only in their day-to-day operations and knowledge of the communities they serve, but also in the reputation they have established for themselves with the medical staff at the local health centers as well as with the leadership in the villages, and now, the expanding role of Commune Councils. It is this latter group whose prominence has grown significantly in the past two years as the government moves decision-making for administrative issues down more toward the local level for implementation.

Also the WHEs have contributed toward gender equity in village leadership for the first time. Several of them have become recognized members of the village leadership in their respective areas. In recognition of their the contribution to the communities, the directors of the health centers in the vicinity where they work have decided to issue identity cards, which enable them to access health center services free of charge. These cards formally endorse all WHEs in their position as role models for good prevention and care-seeking behavior.

The CGs have been described in previous evaluations for this CSP (see Technical Approach section for brief overview). Through a combination of staffing responsibilities starting with Health Field Staff (HFS) and Area Coordinators, the leadership development of the CSP staff has definitely reached deeply down to the community and has led to building the capacity of the village leaders and Commune Councils as these local partners begin to take more ownership of the health issues locally. Today there are 318 CGs in the project area; they have been instrumental in developing a remarkable improvement in Commune Council involvement as local government assumes a more "hands-on" engagement in local health issues. Furthermore, the WR HFS have matured in their role as “trainers of trainers,” and in supportive management and mentoring of the WHE supervisors and the volunteers themselves. Successful training and capacity-building in the community has proven to be key to reaching the projects objectives, and more importantly, to a method of project implementation that builds sustainable community development structures leading to long-term behavior change.

These CG volunteers have come into contact with people well beyond their communities, such as technical advisors, donors and evaluators; these interactions also have helped to motivate them. If visitors praise them at public events, they feel affirmed and respected as important contributors to changing their communities. In addition, this CE-CSP has begun to emerge as a leader in facilitating collaborative child survival efforts among other key participants both within Cambodia and internationally.

But the most remarkable attribute of this CSP, in addition to the fact that the current USAID grant allowed for the expansion of the original CSP coverage, is that with local

[1] Throughout this report, I will refer to WHEs and Volunteers interchangeably.

Mission USAID funding starting in FY 07, the experience gained in these two earlier CSP- supported areas will now be scaled up to 5 times the size of the CE-CSP to address 60% of Kompong Cham Province—more than 1 million people. ***This will be an opportunity to truly witness the ability of a CSP to scale up its lessons learned and strategies to address a major ramping- up of the population to be covered.*** **While technical excellence and management in small-scale CSP's is an accomplishment in itself, it is only when this work can be truly expanded to address populations in excess of one million or more that the value of these NGO-facilitated projects will truly come into their own. Mindful of this expansion, the Final Evaluation of this CE-CSP took on an exciting and challenging perspective well beyond the usual Final Evaluation exercise.**

This new USAID local mission-funded effort is known as "*Sokahpheap Phum Yoeung*" (SPY), or the SPY project (in English, "Our Healthy Villages"). It is with this future challenge in mind that this CSP Final Evaluation was undertaken. Thus, it was carried out with the additional perspective of highlighting lessons learned, best practices, and even introduction of new conceptual frameworks for the benefit of scaling up in the SPY project area as well. Already some staff from the CE-CSP had become engaged as trainers and facilitators in this new coverage area's pilot districts. They have engaged in adaptation of the strategy using the WHEs once again as the critical interface with communities, health facilities and local government authorities. Once again, their involvement must be closely linked with the local village leaders and government officials as new roles and responsibilities for all partners become obvious and necessary in this rapidly changing environment of public-private interaction in health for Cambodia.

Some of the priority conclusions resulting from this Evaluation that carry with them significance for the new project area are:

> In light of the recent heavy dengue fever outbreak in the province, greater emphasis on environmental sanitation, including protection of wells, together with latrines and drainage construction, must be addressed within the context of a yet undefined Dengue Fever Preparedness Plan
>
> A more deliberate effort to coordinate and communicate among all partners in the Province, Districts and community levels must be designed as each partner assumes greater responsibilities for health within their respective jurisdictions
>
> As government health centers are staffed and available, the project should strive for continued improvement in prompt care-seeking behaviors (care seeking within 24 hours for suspected pneumonia increased from 37.2% at baseline to 96.9% at the end of the project), and should continue discouraging the use of traditional healers and fortunetellers who can delay effective case management, especially in young children.

At the same time, the newly emerging Private Sector health care providers should be upgraded to MOH standards of care for uniform, quality case management

The age targets to be covered in the expanded area should be increased to go beyond children under the age of five to embrace up through adolescence with Future Lifestyle training information; this is especially important for introduction of effective HIV-AIDS prevention training.

Linkages with government-supported IMCI program activities at the health facility and the community levels, both for training and supervision, should be established in light of the value added by the WHEs functioning at the community level.

Lastly, mechanisms to maintain the motivation and quality of service provided by the WHEs must be designed in order to ensure sources for their continuing education and access to updated technical information.

B. ASSESSMENT OF RESULTS AND IMPACT OF THE PROJECT

Table 1: Results Summary Chart(Extension Project Area)

Light for Life Objectives	Baseline	Final
Immunization1. Increase to 60% children age 12-23 months who are fully vaccinated before the 1st birthday.	11.8%	78.8%
2. Increase to 60% pregnant women who will receive at least 2 TT doses before the birth of their child	11.3%	85.3%
Hygiene and CDD 3. Increase to 60% (80% old area) mothers who wash hands with soap in conjunction with at least two of the following: before preparing food, before feeding children, after defecation, & after attending to a child who has defecated.	23.4%	99.6%
4. Increase to 80% children with diarrhea who receive ORT.	17.5%	85.4%
Pneumonia Case Management 5. Increase to 40% the percentage of children with suspected pneumonia (rapid, difficult breathing) who were taken to a trained provider within 24 hours.	37.2%	96.9%
Sick Child6. Increase to 50% mothers who know at least 2 danger signs of childhood illness that indicate the need for treatment.	12.7%	99.7%
Nutrition 7. Increase initiation of breastfeeding within 1 hour of delivery to 40% (50% in old areas).	5%	91.7%
8. Increase to 30% the use of iodized salt	5.7%	90.3%
9. Increase to 60% (80% in original villages), caretakers who will give more fluids and continue feeding a child who is ill.	19.3%	97.4%
10. 60% of children who completed the *Hearth* program achieve and sustain adequate or catch-up growth per month during at least 2 months after period of supervised feeding.	N/A	64.8%
11. Increase to 20% pregnant women taking iron tablets at least 60 days during their most recent pregnancy.	0.3%	90.6%

1. Results: Technical Approach

1a. Brief Overview of the Project

Objectives

The Light for Life Child Survival Project's goals are as follows:

1. Reduce the disease burden of children less than 5 years of age and women 15-49 years of age;
2. Strengthen the long-term sustainability of child survival interventions through an integrated community-based approach in harmony with the MOH system;
3. Improve the quality and coverage of services provided by the non-formal health providers.

The Project objectives and indicators, as shown in Table 2, address the major health problems of low immunization coverage, malnutrition and micro-nutrient deficiencies, lack of hygiene, diarrhea, and low utilization of health services for children with signs and symptoms of pneumonia.

Table 2. Project Objectives and Indicators.

Objective	Indicator
Immunization 1. Increase to 60% children 12-23m with full vaccination before 1st birthday.	% children 12-23m fully vaccinated (against the 5 vaccine-preventable diseases) before 1st birthday. (Rapid Core Assessment Tool on Child Health-CATCH)
2. Increase to 60% pregnant women who will receive at least 2 TT doses before the birth of their child	% of mothers of children 0-23m who received at least two TT injections before the birth of their youngest child (Rapid CATCH).
Control of Diarrhea Diseases and Hygiene 3. Increase to 60% mothers who wash hands with soap for at least two of the following: before preparing food, before feeding children, after defecation, & after attending to a child who has defecated.	% of mothers of children 0-23m who wash their hands with soap/ash for at least two of the following: before preparing food, before feeding children, after defecation, & after attending to a child who has defecated (modified Rapid CATCH).
4. Increase to 80% children with diarrhea who receive ORT	% of children with diarrhea in the last 2w who received ORT.
Pneumonia Case Management 5. Increase to 40% the percentage of children with suspected pneumonia (rapid, difficult breathing) who were taken to a trained provider within 24 hours.	% of children with suspected pneumonia (rapid, difficult breathing) in prior 2 weeks who were taken to a trained provider within 24 hrs (same or next day).
Sick Child6. Increase to 50% mothers who know at least 2 danger signs of childhood illness that	% of mothers who know at least 2 signs (e.g. lethargic, high fever, fast/difficult breathing, vomits everything, convulsions) of

Objective	Indicator
indicate need for treatment.	childhood illness that indicate the need for treatment. (Rapid CATCH)
Nutrition 7. Increase initiation of BF within 1h to 40% (45 % in old area).	 % of mothers with children 0-23 m who initiated BF within 1h after birth.
8. Increase to 30% use of iodized salt	% of HH with salt that tested positive for iodine.
9. Increase to 60% caretakers who will give more fluids and continue feeding a child who is ill.	% of sick children age 0-23 m who received increased fluids and continued feeding during an illness in the past two weeks (Rapid CATCH).
10. 60% of children who completed the Hearth Program will achieve and sustain adequate or catch-up growth per month during at least 2 months after period of supervised feeding.	a. % of MN children 0-3y old who complete 12 day Hearth cycle. b. % of children who complete Hearth Program and achieve adequate (200g) or catch-up (400g) weight gain/month
11. Increase to 20% pregnant women taking iron tablets at least 60 days during most recent pregnancy.	% of women with children 0-11 months who took iron tablets at least 60 days during most recent pregnancy

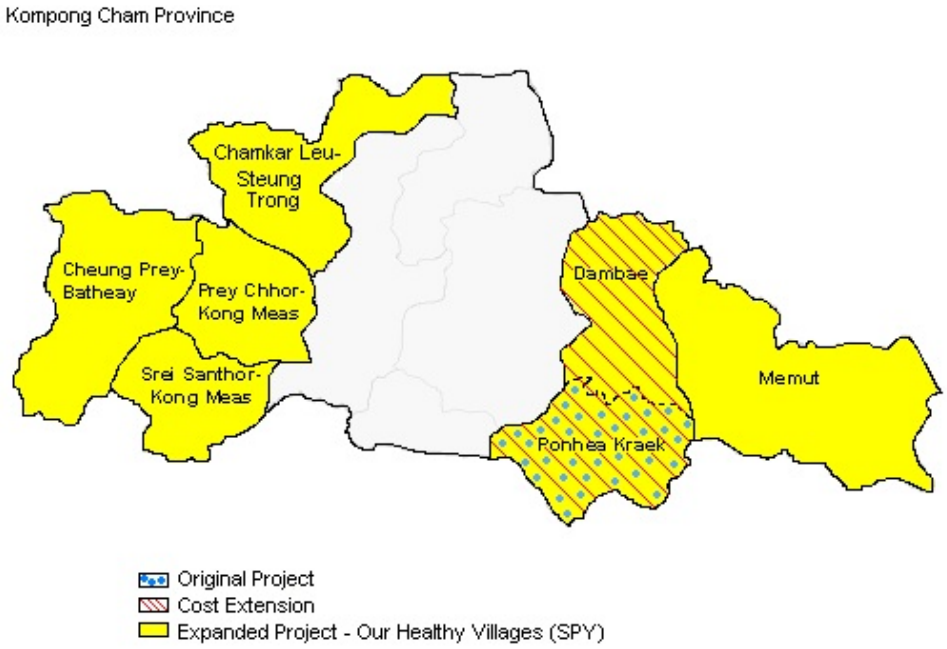
Location

The Light for Life Cost Extension project is located in Ponhea Kriek-Dambe Operational Health District in Kompong Cham province (see Map of Cambodia).

Map of Cambodia

The project is divided into an original project area (where the project began in 1998) and an extension project area, where the project initiated its activities in October 2002. The original project area was limited to Ponhea Kriek and was carried out in five Health Areas (Communes) of the Ponhea Kriek District. The extension project area includes the original project area as well as the remaining three communes of Ponhea Kriek District and all seven communes of the adjacent district of Dombe. Since the Cost Extension project began, the two districts have been combined to form a new administrative unit called an "Operational Health District." The Light for Life CE-CSP project has been followed up by the Our Health Villages (SPY) project, which includes Phonea Krek-Dambe and expands to 5 additional Operational Health Districts in Kompong Cham. The map of Kompong Cham Province below shows the original project area, cost extension project area and the expanded area covered under the SPY project.

Map of Kompong Cham Province



The number of beneficiaries has more than doubled in the extension project area compared to the original project area (see Table 3), with the total population of the original population being 77,804 compared to 184,642 in the CE-CSP population.

Table 3. Project Population Size

	Original Project Area	Extension Project Area	Total CE-CSP Area
Population	77,804	106,838	184,642
Children (under five)	7,479	12,875	20,344
Women (15-49)	18,866	27,262	46,128

The great majority of those living in the Project area are subsistence farmers, and rice is the main crop. However, there are small businesses in the area as well as scattered rubber plantations. The dominant religion in the area is Buddhism, and there are many enormous Buddhist temples located throughout the Project area. In addition, about 11% of the Project population is Muslim (Cham). According to the final survey, 56% of women of childbearing age in the Original

Project Area and 66% in the Extension Project Area have three years of schooling or less. Nationally, 69% of adult females are literate[2].

Intervention Mix

The major project activities involve (1) training and support of community volunteers, who are responsible for peer-to-peer education, and (2) promoting the utilization of MOH services. The Expanded Program on Immunizations (EPI) and nutrition are given the greatest emphasis in the program (with 35% of project effort for each). Hygiene/Control of Diarrheal Diseases (CDD) and Pneumonia Case Management are each given 15% effort.

General Program Strategy

The project focuses its efforts on health education of mothers with young children using the CG Model. The project emphasizes the promotion of household behaviors that will prevent disease and also on the utilization of health services for early disease treatment and disease prevention. A strategy of training and supervising one volunteer, called a Woman Health Educator (WHE), for each 15 houses has been developed, and these WHEs provide carefully targeted messages to each of the households. These Women Health Educators work only 1-2 hours a week.

The 15 women for whom the WHE is responsible do not normally meet as a group. Instead, the WHE visits their homes. On average, she visits three houses a week. At that time she shares the most recent set of messages she has learned, and she observes the progress each woman has made in implementing the previous health messages the WHE has given her.

Ten adjacent WHEs form a CG. Each village has at least one CG, even if there are not 10 WHEs in the village. The CGs together with the Project staff select a coordinator, called a Care Group Leader, who is literate. The CG meets every month with their paid supervisor, called a Health Field Staff (HFS).

The process for selecting WHEs is the following. The number of households in a village is determined by going to the local government office where such records are kept. Then, the number of WHEs needed for the village is determined (one for each 15 households). HFS Members then meet with leaders of that village and ask them to select the required number of WHEs. The project established the following criteria for selecting WHEs:

> Must have a good reputation in the community and be respected by the community;
> Must be willing to work on a volunteer basis 2-3 hours a week;
> Must be 20-50 years of age;
> Must be female, but does not have to be married or have children;

[2] Cambodia DHS 2005

Can be illiterate.

At present, 318 CGs and 2,446 WHEs are currently functioning within the total CE-CSP Area. In addition to the HFS, the project is staffed by a few Behavior Change Communication (BCC) Specialists and Supervisors. The BCC Specialists are all men, and their main responsibility is to conduct puppet shows that convey the same messages that the WHEs are promoting in the village households. All of the remaining Project staff members are women.

Each HFS is responsible for 20-30 CGs, and the HFS tries to visit each CG monthly, but this is not always possible. The goal is to visit 1-2 CGs in a day. More time is programmed in the Extension Project Area than in the Original Project Area for the HFS Members to spend with the CGs. The CGs meet once every month, and the meeting lasts usually an hour or so.

In addition, the Project has recruited the best WHEs from the Original Project Area as WHE Supervisors. They are paid to work five days a month with newly formed CGs in the Extension Project Area. The Each WHE Supervisor mentors four CGs and visits each of these CGs every month.

During each monthly meeting of an HFS and/or a WHE Supervisor with a CG, the HFS and/or the WHE Supervisor shares key health messages and then the CG members practice training on each other in sharing the information being presented. At the time of the CG meeting, births and deaths during the previous month are also reported. Any problems encountered by the WHEs during the previous month and any significant health problems encountered in the households are discussed. The HFS and/or the WHE Supervisor consolidate this information and report it to the HFS Supervisor. During the next four weeks before the next CG meeting, each Volunteer is responsible for visiting each of the households under her jurisdiction to teach the messages she has just learned.

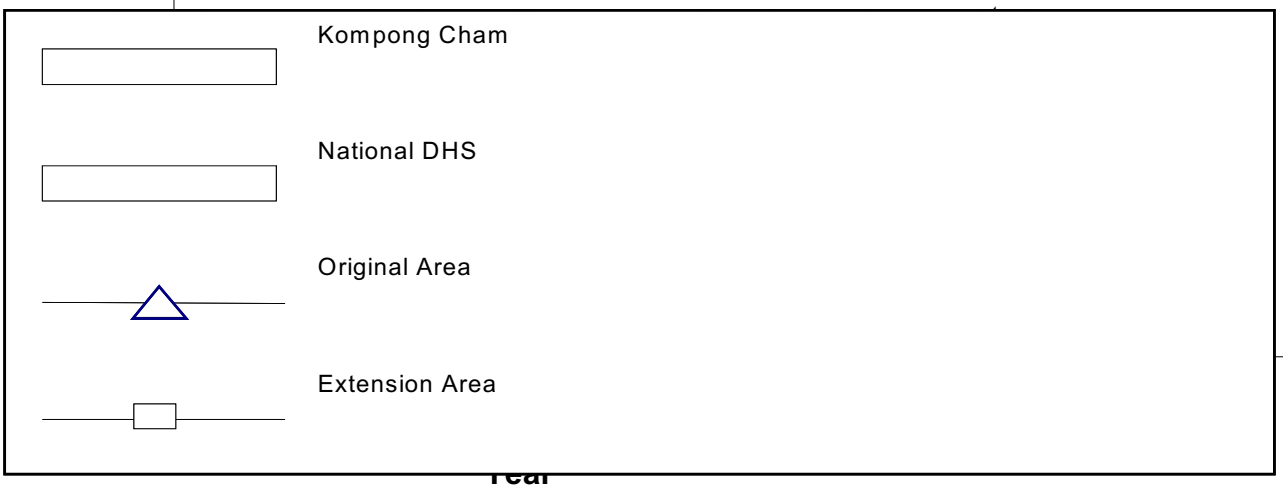
Feedback Committees were created for each area served by a MOH Health Center. These committees are composed of CG Leaders and one village leader from each village served by the Health Center. Once a month, this group meets with staff of the Health Center for 3-4 hours. At that time, the community representatives report to the Health Center staff the numbers of births and deaths during the previous month as well as any significant illnesses or other health problems in the communities. The Health Center staff shares any information that it thinks would be valuable for the community to know. The CG Leaders and the village leaders spread this information throughout the communities afterwards. Together, they set the dates for the EPI outreach sessions in the communities during the upcoming month.

1b. Progress by Intervention Area

Immunization

Complete Child Immunization

The project aimed to increase the percentage of children (12-23 months) who are fully vaccinated before their first birthday to 60%, and far exceeded this goal. In the original project area there was an increase from 54.2% in 2002 to 81.8% in 2007. In the extension project area there was an increase from 11.8% in 2002 to 78.8% in 2007. In both areas, immunization coverage is much higher than the rates reported by the 2005 Cambodia DHS for the nation (67%) and for Kompong Cham Province (68%).



One of the greatest challenges in this intervention area was the fear many mothers had of immunizing their children. In the beginning stages of the project, some mothers would even run away and hide with their children to protect them from the immunization campaigns. Additionally, the fever that sometimes occurs in children after receiving an immunization was seen as an illness to be feared, rather than a side effect to be expected. The Light for Life project staff spent a considerable amount of time re-educating the villagers on this side effect by explaining the how minor the fever was in comparison to the seriousness of disease that the immunization would prevent. The staff also took the preventative measure of treating fever by giving children paracetamol before an immunization. Finally, for a brief period, the project provided mothers with an incentive (a photo of their child) that they received once their child was fully immunized (see New Tools and Approaches section, below, for more information).

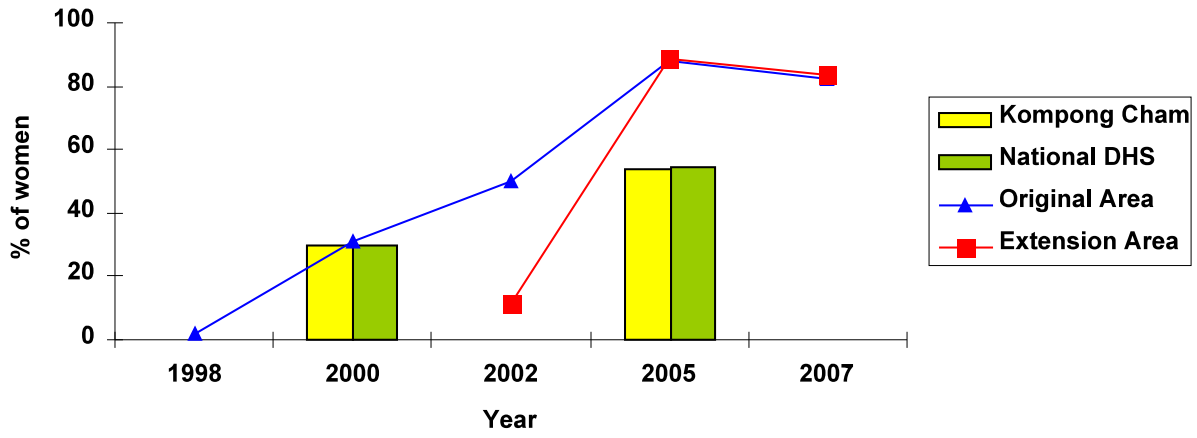
Altogether, the strategies the Light for Life staff used to help mothers overcome their fears made this intervention a success. The lessons learned for how to help mothers understand the benefits of fully immunizing their children will be applied in the expanded SPY project.

Antenatal Immunization (Tetanus Toxoid)

The project aimed to increase to 60% the percentage of pregnant women who received at least 2 TT doses before the birth of their last child. The Tetanus Toxoid vaccine, given during EPI outreach, became widely accepted as mothers began to understand the benefits of vaccinations (described above).

In the original project area there was an increase from 1.8% at the original project baseline (1998) to 50% at the current project baseline (2002) to 86% at the final evaluation (2007). In the extension project area there was an increase from 11.3% in 2002 to 85.3% in 2007. Thus, the project greatly exceeded its goals for this intervention in both the original and extension project areas, and once again far exceeded the national (54.2%) and provincial (53.7%) rates reported in the 2005 DHS.

Graph 2. Percent of women with TT2 before the birth of their last child



Control of Diarrheal Diseases

Hand Washing

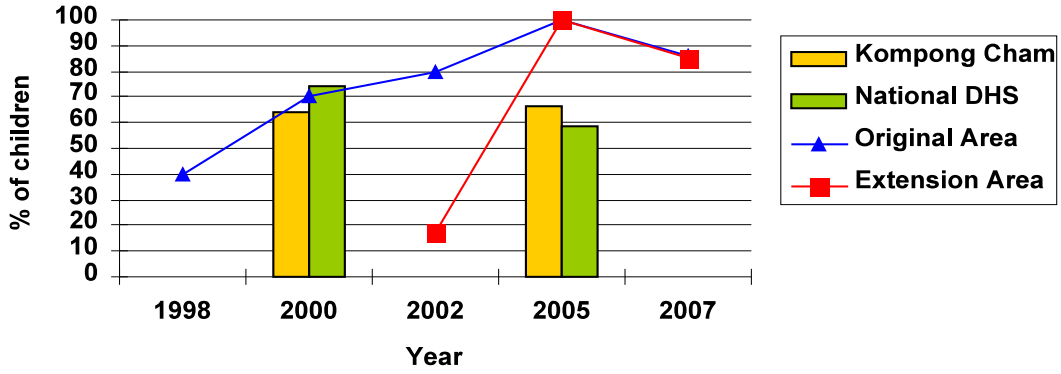
The project aimed to increase the percentage of mothers who wash their hands with soap at two or more of the following times: before preparing food, before feeding children, after

defecation and after attending to a child who has defecated. The targets for this intervention were 80% in the original project area and 60% in the extension project area. The project exceeded its goals in both areas. In the original project area, there was an increase from 94% in 2002 to 98.2% in 2007. In the extension project area, there was an increase from 23.4% in 2002 to 99.2% in 2007. The final evaluation field work substantiated these numbers as evaluation team members used a checklist to observe environmental factors influencing health in 95 households deemed "very poor" by team members (convenience sample). Soap and water were present in more than 90% of observed households.

Oral Rehydration Therapy

The project aimed to increase the percentage of children with diarrhea who receive ORT to 80%. From the 1998 baseline of 42.4% in the original project area, the percentage increased to 79.9% in 2002 and again to 86.1% in 2007. In the extension project area, there was an increase from 17.5% in 2002 to 85.4% in 2007. Therefore, the project exceeded its goals for this intervention and surpassed national (58.4%) and provincial (66.2%) rates of ORT use for children with diarrhea[3].

Graph 3. Percent of children with diarrhea who receive ORT



WHEs taught the caretakers to give children with diarrhea increased fluids, including ORS, home available fluids, and increased breastfeeding. In addition, WHEs taught caretakers to continue feeding the children foods high in protein and potassium.

Pneumonia Case Management

Treatment of Pneumonia

[3] Cambodia DHS 2005

The project aimed to increase to 40% the percentage of children with suspected pneumonia (rapid and difficult breathing) who were taken to a trained provider within 24 hours. In the original project area, there was an increase from 51.8% in 2002 to 94.2% in 2007. In the extension project area, there was an increase from 37.2% in 2002 to 96.9% in 2007. Therefore, the project greatly exceeded its goals for this intervention.

The project overcame a number of challenges to achieve the goals of this intervention area. First, before the Light for Life project began, only a few mothers recognized even some of the signs and symptoms of pneumonia. Second, once mothers recognized signs and symptoms, they often failed to seek immediate medical attention. Finally, the limited care seeking was primarily directed towards individuals without appropriate training or skills for treating pneumonia: pharmacists, village phlebotomists, traditional healers, family members, and friends.

After successfully training caretakers on the signs and symptoms of pneumonia, the WHEs encouraged early care seeking from the local Health Center, rather than untrained providers. Prohibited by the Provincial Technical Bureau from training drug sellers on appropriate treatment for pneumonia, the project trained mothers (see Annex A for more information).

Recognition of Danger Signs

The project aimed to increase to 50% the percentage of mothers who knew at least two danger signs of childhood illness. In the original project area, there was an increase from 22.7% in 2002 to 98.7% in 2007. In the extension project area, there was an increase from 12.7% in 2002 to 99.7% in 2007. Therefore, the project greatly exceeded its goals for this intervention in both the original and extension project areas.

A major challenge for this intervention area was the traditional reliance of communities on local healers and spiritualists to diagnose and treat illnesses. Mothers and caretakers had to be convinced of their own ability to recognize danger signs of childhood illness as well as the importance of seeking treatment once these danger signs were recognized. It is evident that project staff and volunteers were overwhelmingly successful in changing perceptions for how danger signs can be recognized, given that nearly 100% of mothers were able to recognize at least two danger signs by the end of the project.

Nutrition

Immediate Breastfeeding

The project aimed to increase the percentage of mothers who initiated breastfeeding within one hour of delivery to 50% in the original project area and 40% in the extension project area. In the original project area, there was an increase from 44.0% in 2002 to 91.3% in 2007. In the extension project area, there was an increase from 5.0% in 2002 to 91.7% in 2007. Therefore, the project greatly exceeded its goals for this intervention in both the original and extension project areas.

A significant factor affecting the achievement of this objective was the presence of traditional practices related to breastfeeding within the communities. Prior to the project intervention, it was common for mothers to discard the "first milk" (colostrum) and to give water instead of breast milk. The volunteers encouraged mothers to begin breastfeeding within the first hour after delivery and explained that the "first milk" is beneficial for newborns and should not be discarded.

Increased Fluids and Continued Feeding

The project aimed to increase the percentage of mothers who offer sick children increased fluids and continued feeding to 80% in the original project area and 60% in the extension project area. In the original project area, there was an increase from 64.9% in 2002 to 94.4% in 2007. In the extension project area, there was an increase from 19.3% in 2002 to 97.4% in 2007. Therefore, the project exceeded its goals for this intervention in both the original and extension project areas.

Traditional beliefs pertaining to the loss of fluids during episodes of diarrhea proved to be a challenge to achieving behavior change in this intervention area. It was widely believed that one should stop giving fluids to a child, so that fluids would stop being released. The Light for Life project staff confronted this challenge from the beginning using several successful education approaches to explain the importance of giving children fluids, especially when they are experiencing diarrhea. For example, the project staff and volunteers taught mothers to view children as flowers needing plenty of water in order to grow healthy and strong.

Food quality and handling practices also proved to be challenges in reaping the health benefits of continued feeding when a child is sick. Eating spoiled meats, rotten vegetables, rotten fruits, expired dairy products or foods contaminated by rodents or other animals contributed to poor health. Along with health behavior change communication encouraging caretakers to continue feeding sick children, there was also a need to educate communities on proper food handling. This aspect of addressing food quality concerns will also be applied in the expanded SPY project.

Hearth

The project aimed for 60% of children who completed the *Hearth* program to achieve and sustain adequate or catch-up growth for at least 2 months after the period of supervised feeding. The project achieved its goal, as 35 out of a total of 54 malnourished children (64.8%) who completed the Hearth program achieved and sustained adequate or catch-up growth for at least 2 months after the period of supervised feeding.

The Hearth program was conducted in just 4 villages, because it proved more difficult than expected to implement. To be successful, Hearth requires intensive participation from mothers and volunteers every day for 12-14 days. This was difficult, as both mothers and volunteers usually work every day in the fields or elsewhere to earn money for the day's food. This was especially challenging for the poorest of the poor, who were the most likely

to have malnourished children. In addition, most Hearth groups were only effective if the project provided food for the group. Mothers contributed very little and didn't come regularly for the Hearth training because they were too busy working in the rice fields. Although the project achieved its goal for attaining growth in malnourished children, the relatively limited success of the Hearth program implementation was not considered worth the great investment of staff time and effort. Instead, the project began conducting monthly growth monitoring sessions that occurred in conjunction with EPI outreach. Health Center staff and project staff worked together to train CGs to weigh children (one scale was given to each CG). Volunteers weighed children during EPI outreach sessions, recorded the weights on the growth cards, and identified malnourished children. Volunteers found that mothers didn't recognizing moderate malnutrition in their children or understand its importance. Volunteers provided training on malnutrition, the connection between malnutrition and other diseases, as well as how to improve feeding practices.

Iodized Salt

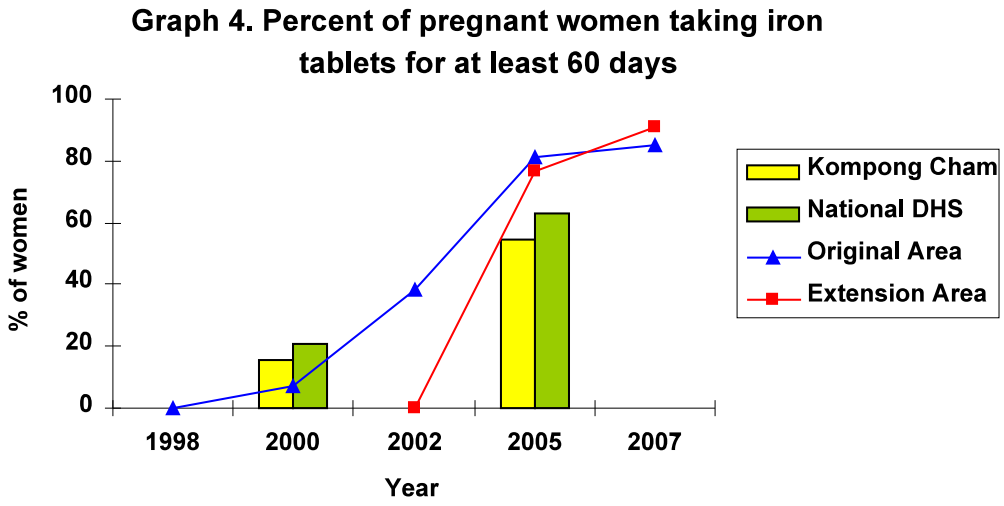
The project aimed to increase the current use of iodized salt in each household to 30%. Far exceeding the project goal, there was a dramatic increase in the household use of iodized salt in both the original and extension project areas. From a 1998 baseline of 0.0% in the original project area, household use of iodized salt increased to 55.0% by 2002 and increased to 86.3% in 2007. In the extension project area, there was an increase from 5.70% in 2002 to 90.3% in 2007.

A significant factor affecting the achievement of this objective was the availability of iodized salt in the food market. Prior to the "Light for Life" project, iodized salt was not easily accessible to consumers. Therefore, the project had to address both the supply and the demand aspects of increasing the household use of iodized salt. The project staff worked painstakingly with vendors and suppliers to teach them the benefits of iodized salt and encourage their commitment to selling it. Most, if not all, salt vendors now sell iodized salt, although non-iodized salt is still available in the market. Volunteers, in turn, trained mothers about the health benefits of iodized salt and drove up demand for it. This strategy of addressing both supply and demand factors of household iodized salt use will be applied in appropriate interventions in the expanded SPY project.

Iron Supplementation

The project aimed to increase to 20% the percentage of pregnant women taking iron tablets for at least 60 days. From a 1998 baseline of 0.3% in 1998 in the original project area, there was an increase to 38.0% in 2002 and an increase to 85.3% by 2007. In the extension project area, there was an increase from 0.3% in 2002 to 90.6% in 2007. Obviously, the project far exceeded its goal of 20%, and it also exceeded national (62.9%) and provincial (54.5%) rates[4].

[4] Cambodia DHS 2005



The volunteers taught women the value of taking iron supplements, that it would make them strong, healthy, and help avoid hemorrhage during delivery. Initially, there were complaints of constipation and abdominal discomfort. The volunteers advised expectant mothers experiencing these ailments to change the dosage to every other day versus the daily dose prescribed, but emphasized that they should not discontinue use. Iron tablets with folic acid quickly became accepted, especially after some mothers shared their positive experience with others. These strategies for reducing the side effects of iron supplements greatly impacted the success of this intervention and will be used in appropriate interventions in the expanded SPY project.

1c. New Tools and Approaches

The Light for Life staff have been active in developing innovative tools and approaches to overcome challenges throughout the life of the project. Some of these new tools include:

> *Use of photos to attract mothers to attend EPI sessions with their children.* Mothers in the project area were fearful of EPI services because of the occasional side effects noted in their children after immunization. The staff worked diligently to educate mothers about the significant health benefit of immunization to prevent disease. They explained the mild and occasional side effect of fever after immunization and even worked to prevent the onset of fever by providing paracetamol before immunization. However, many mothers still refused to bring their children to EPI campaigns. The staff realized that a small incentive was necessary, so that the trust and confidence of the mothers could be gained through positive experiences with immunization. When a child was fully immunized a photo was taken and given to the mother as a reward, which proved to be enough incentive for mothers to bring their children to be immunized. Eventually, it was no longer necessary to offer the photos, because mothers overcame their fears of immunization and recognized its benefit for the health of their children.

Integration of leadership training for village leaders. Project staff recognized that CGs were more successful in communities with supportive village leaders, so they tried to further engage them. Village leaders were invited to participate in CG meetings and their interest in supporting their village WHEs increased, while the WHEs experienced better acceptance by the community. The project increased the investment in the leaders by providing leadership skills development for them, so that they could further support CGs and their communities overall (see Results Highlight for more details).

Operational research to assess and describe WHE "drop out" rates. While the "Light for Life Project" experienced remarkably low volunteer attrition (8.0%), the Program Manager, Oun Sivan, researched the reasons that women were leaving their volunteer roles as WHEs and tried to better understand the motivation of the WHEs who didn't drop out (see Annex B). She found that many of the WHEs who quit the project did so either because they were too busy working fields (or other jobs) or because they considered themselves too old and tired to be making so many home visits. The final evaluation team members spoke with several volunteers who said they had joined the project after their mothers "retired" from being WHEs.

Empowerment of women to become recognized agents of change and leaders in their communities. Many women in the villages where the Light for Life project was implemented have never had the opportunity to hold a recognized leadership position in their community. For many women, becoming a WHE meant having a recognized position of influence in their community for the first time. The Light for Life project placed a special emphasis on extending this opportunity specifically to women, by recruiting only women for the volunteer role (thus the name, *Woman* Health Educator). The project staff saw that it was key that only women become part of the CGs and fulfilled the roles of a WHE, because only then would women gain the credit for the success of their work (otherwise the success could be attributed to the involvement men). Over the course of the Light for Life project, communities did recognize the abilities and influence of the women. In fact, women even became involved in local government. Before the Light for Life project there were no women elected to positions on the Commune Councils, but by the end of the project, approximately 50 WHEs had been elected by their communities.

Operations research of ARI case management for children under the age of five. The Project Manager, Oun Sivan, also conducted a study of ARI case management for children under five in one health center catchment area of the project. The research examined the effectiveness of mothers in treating their children for ARI with the correct and age appropriate antibiotics (see Annex C).

Operations research on the knowledge and practices of drug sellers. The project conducted operations research to assess the knowledge and practices of drug sellers in the project area. The drug sellers were surveyed to assess their knowledge of danger signs and symptoms of common childhood illnesses, particularly pneumonia and acute diarrhea. The survey also included questions to investigate the practices of drugs sellers in treatment (prescription of drugs) and health center referral for children within specific age groups and displaying particular symptoms (see Annex A).

2. Results: Cross-Cutting Approaches

In light of the fact that this CE-CSP serves as a "staging & training ground" and "entry point" for the expanded SPY project that began in FY07, an effort was made to address within the existing CSP project what could be identified as new, helpful, but "missing" management\communication elements that could further enhance the collaboration and coordination that has already taken place there. Here is where the consultant's introduction of elements from Leadership Training adapted from Peter Senge's, "The Fifth Discipline" proved useful. The same leadership training can be appropriately applied in the new scaling-up activities for SPY.

Using principles drawn from Peter Senge's, "The Fifth Discipline" and adapted to the public health sector with funding from the Gates Foundation by Drs. Henry Mosley and Ben Lazar, at Johns Hopkins' Bloomberg School of Public Health, Baltimore, these Leadership training principles have been widely used by the private corporate sector for over the past decade. In summary, their application strives to develop all-inclusive Learning Organizations where previously a more traditional top-down style of management had directed planning, implementation and evaluation. While much of this content was implied in the CSP activities and objectives, this refreshing perspective brought addition meaning to the decisions already taken and confirmed that the project was truly "in-line" with the approach promoted by Senge's principles and strategy for improved leadership and program change.

The first two days of the Evaluation were devoted to introducing this material to the World Relief CSP staff covering four specific sessions together with small group exercises; they all were well received by the staff and management with a request that a shorter version be scheduled for a one-day training for the full staff team currently involved with the SPY project.

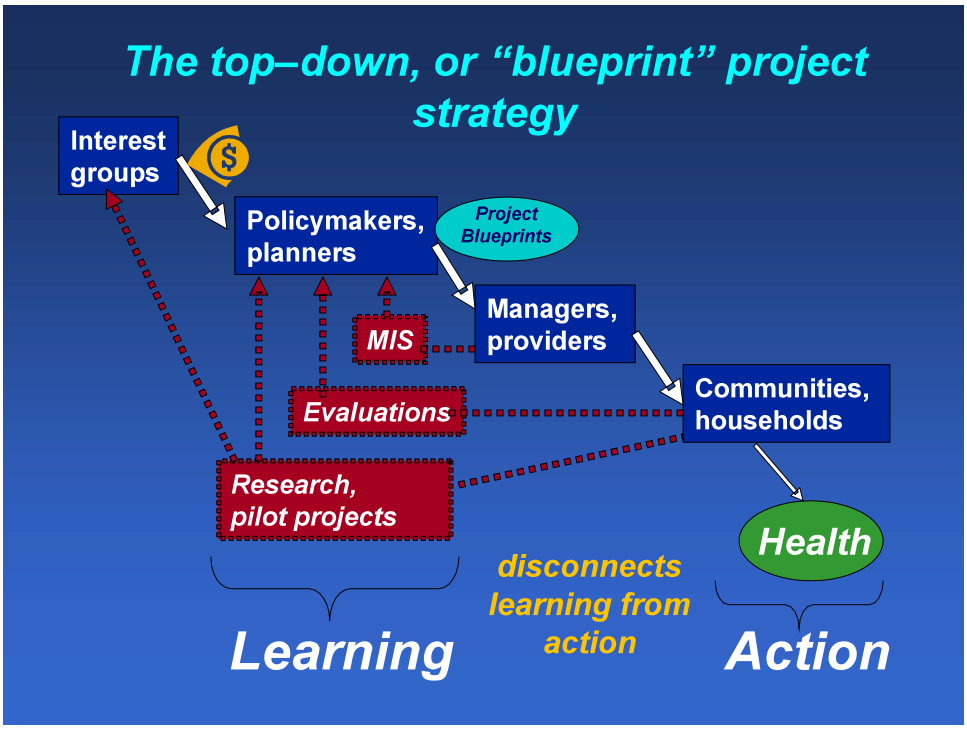
Introduction to Peter Senge's, "The Fifth Discipline"

The faculty at Johns Hopkins has had extensive experience in training hundreds of participants using these principles; in addition, an elegant operational research project was carried out in both Uganda and Indonesia to study under controlled conditions the impact of

this approach had on improved health programming planning and implementation compared to the usual processes in place. Such an elaborate evaluation of a training program is rarely documented by those promoting its usefulness.

The course as provided is titled, "Leadership Training", but is far from the usual content found in leadership training that commonly presents and compares basic styles of leadership, but does not deal with basic underlying strategies that can enhance the ability of every member of an organization to recognize and develop their contribution to its overall goals and vision. The results have been impressive with the Government of Indonesia has made this course required for all government health employees. It is most recently been included in the training menu offered by AMREF in Nairobi, Kenya with Malawi NGOs and MOH having many key staff now trained in its application.

Basically, using Senge's approach, the comparative difference between the usual way USAID Child Survival projects are carried out is shown in the following diagrams:



Here can be seen the usual disconnect between the LEARNING and ACTION which often deprives the participants most involved in health system in any country, namely the households in the communities, from truly engaging in the process. Furthermore, this traditional approach does not lend itself to the flexibility to identify and address new

challenges as they emerge. The mentality/work environment that is promoted is one of "top down" ownership of the problem and the solutions. This creates dependency and a loss of the creativity and problem-solving skills that obviously do exist in the households and communities of the poor (otherwise how could they survive as they do?). Ultimately, it is only these communities who persist over time in this ever-changing climate of new global initiatives- long after the donors have left.

As a new strategy, the following diagram is offered as an alternative:

The difference here is that there is continuous interaction among the key participants in the program strategy, namely the policymakers and planners, the managers and providers, and the communities in households, who together are working toward improved health objectives.

But in order to bring about such a reform and health planning, it is imperative that those introducing this idea are aware of the current Mental Models that are in the minds of the key participants. These Mental Models govern how we think and respond to needed change. As an introductory step in introducing this to the current CSP Health Staff, a simple exercise was carried out as follows:

You are the Minister of Agriculture. You are asked by a reporter from CNN to describe the *agricultural system* in your country.

- What is your answer?

The usual response includes farmers, Agricultural Associations, truckers and vendors, marketing facilities, etc.

But when asked, you are the Minister of Health and are asked by a reporter from CNN to describe the *health system* in your country.

- What is your answer?

Here even for those who had been engaged intimately in the Child Survival Project activities for years, **none identified the households as the primary producers of health in the community.** This is not an unexpected reply due to the fact that the definition of the Health system is usually limited to the traditional description including: health facilities, their professional staff and technicians, pharmacies, and medical nursing and training institutions. This oversight is even more remarkable in that this project had focused almost exclusively on the development of a cadre of highly successful community-based health promoters whose value added is well recognized both by the families, the community leadership, and their associated health facilities and staff.

A simple exercise comparing government with household resources, for example, the number of health providers available, the funds per capita expended yearly, hours per day available, days per week available, and level of motivation dispelled this Mental Mode. It served to make the point that the households indeed were predominant over the government capacities. But the households were most deficient in knowledge and skills in appropriate preventive and curative interventions. The CSP's WHEs have served to correct these deficiencies.

Once this distorted "mental model" has been adjusted to reflect the reality of the situation, the following key premises were discussed and agreed upon:

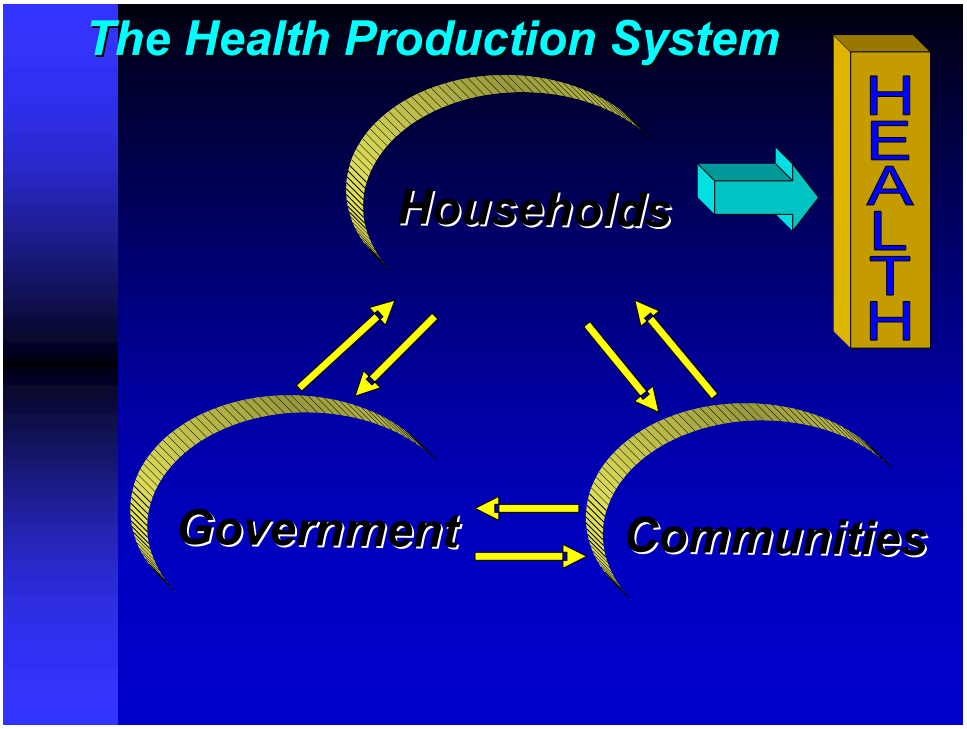
1. Households are the primary units for the production of health. Mothers are the *primary managers and implementers* of the household health production tasks, and women and children are the major "beneficiaries/victims." 2. Households, like every social institution, have three basic *capabilities* for the production of the desired outputs:

Values

Practices

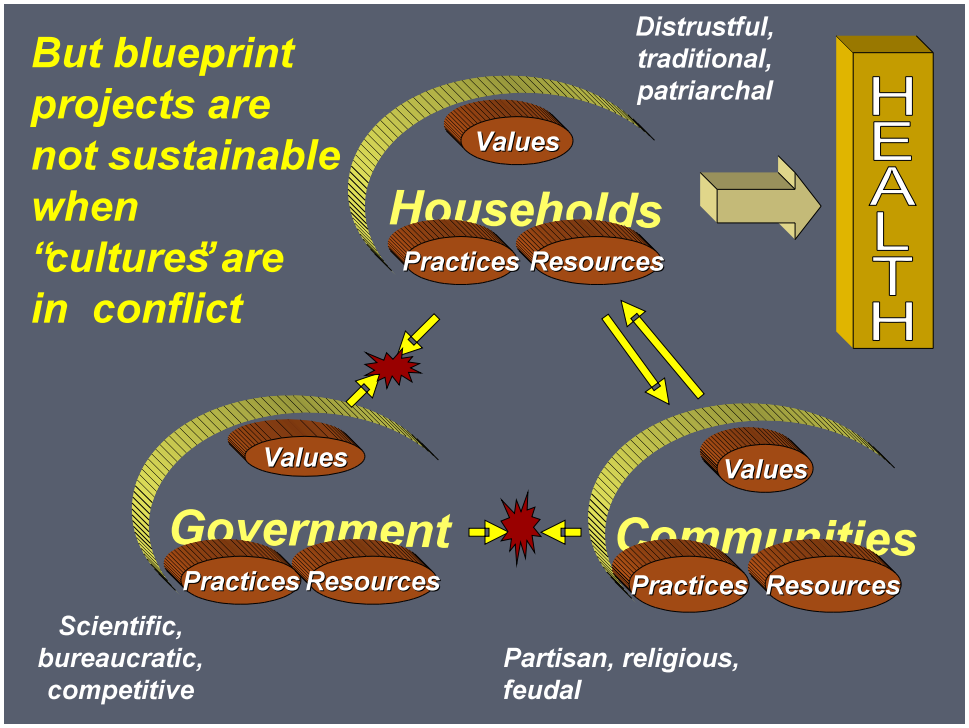
Resources

3. Households produce health in the context of the local community and the wider society – which is truly the nation's *health production system.*"In Cambodia, families themselves carry the biggest financial burden for supporting Cambodians health care system with out-of-pocket payments accounting for 75 to 80% of health spending. The poor are affected most dramatically, with health care constituting 28% of total household expenditures (Cambodia Poverty Reduction Strategy Paper, 2002). Families in the countryside that are better off may have backup resources to cover health expenses in case of a serious illness in a family member, including means of transport travel to a private provider, health center or hospital if necessary. Poor families do not have such reserves and will try the cheapest options first. To prevent travel costs, they'll try to find care in the village. These providers often accept payment in kind or in installments, and accept any amount given. For many of the poorest Cambodian families, these actions have been the only available choice for care".[5]The "new" definition of the health production system then resembles the picture below with each of the three entities bringing with them their own set of Values, Practices, and Resources which go into developing what is known as a "culture". It is only with a deeper mutual understanding of the respective cultures and their individual *values, practices, and resources* that there can release of new creativity to move forward from long-standing barriers to achieving the future that most of the partners desire.

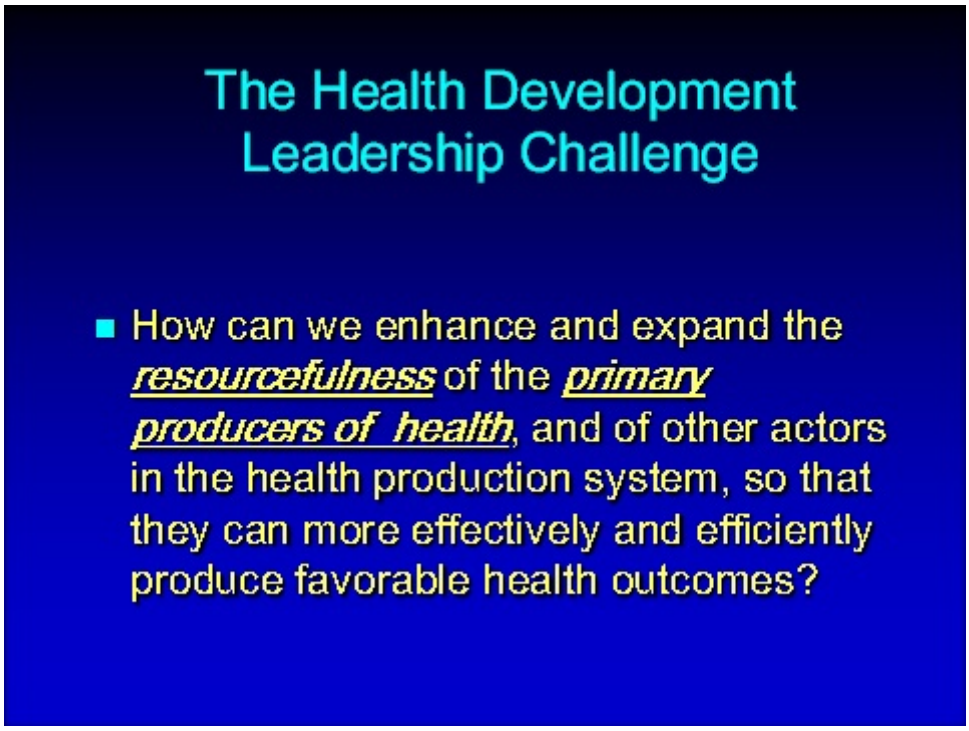


[5]"Demand and Care-seeking for Child Health Services in the Government, NGO, and private sectors in Cambodia," a draft paper prepared by Dr.Rob Overtoom, URC consultant, May 2004.

But oftentimes there is little understanding and communication across the three distinct, competing "cultures" within each entity resulting in difficulties in coordination and collaboration. The picture often resembles the following:



The often neglected starting point and fundamental challenge in improving family and community health is the following challenge:



This then begs the question, "What is the solution to initiate and sustain fundamental changes in the health production system?" Senge's, "The Fifth Discipline" offers two effective recommendations:

> The restructuring of the concept of leadership that works off of a Shared Vision as agreed upon by all participating partners. This Shared Vision must be generated by all contributing stakeholders who then can individually identify their roles and responsibilities in bringing that Vision to reality. The emphasis is on the word "shared"; this vision will start with every individual and expand to engage their respective organizations.

This *Shared Vision* will lead to policies, strategies and cooperative programs that will promote and support the household production of health.

> Secondly, it calls for the establishment of Action Learning Organizations whose members (stakeholders) collectively:
>
> - design a future they desire
> - form a learning organization – a three-way partnership of community members, officials and experts when needed to realize it through successive approximation.

The World Relief team then set out to establish their Shared Vision as a small group exercise based on their project experience with a view toward a "future" that might be shared with the SPY project.

The result of their deliberations was the following:

Finally, the World Relief CSP field staff team, most of whom will be involved with the SPY project, were given additional training on the development of a Reality Tree exercise to identify major barriers that must be addressed and eventually overcome if indeed the Shared Vision will be achieved. The tendency for existing organizational bureaucracies is to shy away from dealing with these issues that are often complex and difficult. Rather, they choose to "feed the dragons," rather than meet the major obstacles head-on. But equipped with the understanding of the power of a Shared Vision, and the knowledge that without dealing with these "dragons," no real change can occur, many organizations do succeed in moving forward.The last exercise dealt with creation of a Learning Organization for the Cambodian team and the key elements for its success. These include, first, "Keeping Score" that allows for continuous tracking of progress toward the goals; this data also creates enthusiasm for those who are producing the results. Unfortunately, this M&E information that is generated routinely in CSPs and government health programs rarely gets back to the

lower echelons in a program and almost never to the communities themselves. The use of the CG model by this CE-CSP addresses this gap by ensuring that results from regular monitoring surveys are given back to the community volunteers and to village leaders, so communities are able to track their progress. In addition, monthly statistics from the Community Health Information System are shared with community volunteers for problem solving at the village level. Secondly, feedback from supervisors is also helpful, but it eventually it comes down to self -measurement on the part of every participant to maintain competencies.The WR CSP team's responsiveness to this training was demonstrated by the fact that almost every participant took away electronic copies of all the presentations for their continued review and application. It also helped them to mark a new, expanded and visionary "starting point" for SPY project activities while at the same time appreciating the value of their experience gained through the past CSP projects. It enabled them to understand the importance of moving away from identification of the NGO as the major party responsible for sustaining the changes in the communities. Furthermore, it heightened the value of data to be shared on a regular basis with all participating partners in order for everyone to be able to "Keep Score" and to own the results. While the introduction of a Shared Vision was new, the team recognized that it did rise above the usual understanding of goals and objectives found in CSP's to a new level useful for inspiring multiple partners, even those beyond the usual ones encountered in CSP's. It opened the possibilities of tapping into private sector resources; creating an expanding role for youths and men, especially fathers; and enabling the understanding that every individual involved has the responsibility to be a Leader to inspire others toward that Shared Vision.Only one day was available to introduce this training to the joint team partners engaged in the SPY Project. Again it was enthusiastically received with considerable interaction from the 65 participants attending despite the need for translation into Khmer for most of them to comprehend. Their ability to grasp the concepts and the difference that this approach presents to a program (not limited to a "project" mentality with heavy dependence on the NGO) showed that the material was transferable across cultures and represented a refreshing, challenging new way of addressing the challenge of the province-wide expansion.

The following are comments on the specific crosscutting approaches used in the WR Ponhea Kriek CSP related to the following specific activities:

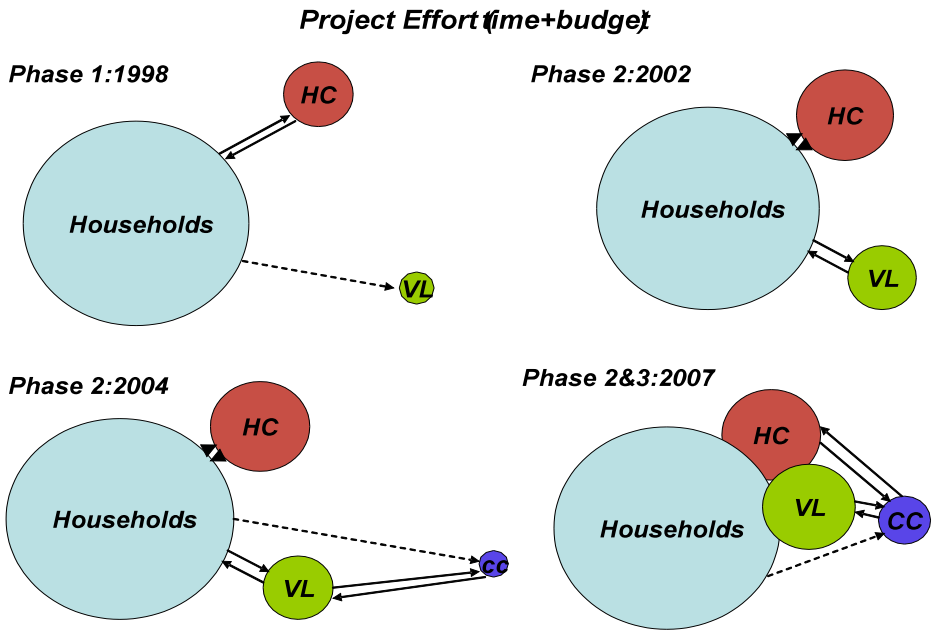
2a. Community Mobilization

As found in all previous evaluations of this CSP, community mobilization can be described as the essence of this project. The decision to focus on community-based volunteer health

workers using a structured, stratified system of training and supervision, including monthly record-keeping of pertinent vital statistics, has made this project the object of considerable international attention. As uncovered in multiple interviews with village leaders, health center staff, Commune Council membership, as well as many mothers and fathers who have benefited from interaction with the WHEs, this approach has been an outstanding success in not only mobilizing parents toward practical preventive means of protecting their children from disease, but also is acknowledged by the staff at the respective Health Centers as an invaluable contribution to the increased utilization of their facilities.

As for sustaining these community mobilization activities, the same model will be employed in the SPY Project, but with a modified training plan that will attempt to coalesce more of the topics together in an attempt to speed up the training process. An upcoming monitoring survey will consider the effectiveness of this new approach. Similarly, supervision will follow a similar pattern is used in the CSPs together with the routine data collection used in the past.

As part of the Final Evaluation exercises, the changing dynamics involving (a) households, (b) the government (village leaders, and later, Commune Council), and (c) health centers starting back in 1998 and evolving through to the present day Extension CSP were identified. The following dated illustration attempts to demonstrate the shifting dynamics within the context of Community Mobilization activities that have evolved during this period. The size of the circles represents the level of project time and money dedicated to each entity and the proximity to the other circles represents how closely the entities worked together. The arrows depict the flow of communication among them.



[HC=health center, VL=village leader, CC=commune council]

The illustration shows that as the project progressed, it dedicated more and more time and financial resources to health centers, village leaders and commune councils, and that communication and collaboration steadily improved through the life of the project.

It was pointed out that throughout the implementation of the SPY project, this tri-part interaction (household, government, health center) must be continually monitored as dynamics will continue to shift over time. The new project, as did the previous CSPs, must take these changes into consideration and modify their needs for re-designing community mobilization and communication activities to keep up with the shifting times. These might include new strategies for communication among the partners themselves, as well as new technologies to assist in the mobilization activities. These could include possibly: expanded use of mass media, inclusion of new private-sector partnerships for advocacy and mobilization, and strengthened alliances with churches and the Buddhist community.

2b. Communication for Behavior Change

Once again, the health education and behavior change methodologies used in the earlier CSPs will be extended into the new Province- wide undertaking. The CGs employ BCC techniques to convey their health messages. Volunteers use stories, demonstrations (hand

washing with water bottle, how to make ORS) and role plays (negotiation of early initiation of breastfeeding) and visual aids that stimulate dialogue. The pictures have questions ("What do you see? What do you think is happening here?) that help the WHE to communicate accurate health messages and help the mother walk through the steps necessary to practice a new behavior (Where do you use the bathroom? How could you wash your hands afterwards? Where would be the best place for a hand washing station? What materials would you need? Etc.) In addition, the Men's Behavior Change Communication Teams' use of dramas and skits to convey health messages has not only attracted an audience of children, but often were the only direct communications regarding the preventive health objectives of the project to groups of men. Comments gathered during the numerous questionnaires conducted in the communities revealed they were well received; hopefully with increased government use of the media to reinforce its messages, their impact will only increase.

While the CSP project staff did not focus specifically on training the WHEs for dialogue skills to counter objections to behavior change on a one-on-one level, in interviewing them, many of them were adept at working on this level as they were primarily focused on this level of communication. Furthermore, no specific evaluation efforts were undertaken to sort out the contribution of the Behavior Change outcomes; rather, the progress made in the specific intervention outcomes are an indication of their valuable contribution. All project objectives were met and surpassed, including those related to behavior change. For example, mothers washing hands at 2 or more key times increased from 23% at baseline to 99% at the end of the project. Similarly, children with diarrhea who are treated with ORT increased from 18% to 85%, and initiation of breastfeeding within one hour of delivery increased from 5% to 92%.

2c. Capacity Building Approach

The USAID funding support for the two sequential CSPs has provided World Relief with a sufficient time frame to undertake the time-consuming task of capacity building of truly community-owned interventions. Furthermore, the NGO has diligently documented the process of training, supervising, and evaluating the role of the WHEs and shared it extensively within the community of other NGOs implementing USAID funded Child Survival projects as well. They have produced with support from the Core Group a detailed CG Manual that has been widely distributed; the CG model has been shared in several technical meetings as well. This documentation is done in sufficient detail to allow for adaptation in other settings, even without the on-site opportunity that was afforded this consultant in this Final Evaluation activity.

In order to assess the progress made by an NGO as a capacity builder, a paper by Joseph Stuckey, Barbara Durr, and Gwen Thomas for CARE USA, titled "*Partnership Principles: What We Have Learned About Partnering and Institutional Capacity Building Concepts",* was useful. The question addressed in the paper was, "When can Capacity Building be considered Partnership?" The spectrum of progress can be assigned to one of four possible options ranging from:

1. Here the values flow in both directions with joint planning and decision-making characterizing the relationship; it feels like a Partnership

2. Since there is a two-way benefit, this starts to feel more like a partnership, but since there is little joint planning and decision-making, this relationship might be better term date strategic alliance that produces mutual benefit rather than any to Partnership

3. Here capacity building involves one-way learning; it feels less like a partnership than either #1 or #2.

4. Since the benefit is most in one way and few if any partnering principles and practice this can be described more like a service provider-to-client relationship than a partnership.

2ci. Strengthening the Grantee Organization

In interviews with WR senior management and key local CSP staff, most agreed that the capacity building relationship was closest to the type B situation described as an agreeable Mutual Benefit Alliance. Because of the relationship between WR and the major donor, USAID, this degree of capacity building is realistic and sufficient for a solid working relationship between the NGO and the partnering host country entities.

Evidence of capacity building of both headquarters and field operations can be seen in the progression of the 3 phases of the child survival efforts, serving populations that increased from 75,000 to 185,000 to 1 million people. Many of the staff (both HQ and field) have been part of World Relief since the inception of the first CSP in Cambodia, and have been continually promoted as their skills developed. For example, the current Program Manager, Assistant Director, 75% of the Supervisors and the Women's Empowerment Trainer and BCC coordinator of SPY all started as Health Field Staff in the original CSP. World Relief HQ's Director of Maternal and Child Health Programs started as the technical backstop of the original CSP. Through the progression of the CSPs in Cambodia, World Relief staff have increased capacity to adapt and scale up the CG Model, taking advantages of economies of scale and variations in training and community mobilization techniques, as well as adapting the model to a non-African context.

2cii. Strengthening Local Partner Organizations

A remarkable element that must be kept in mind is to consider the context in which this project has been working, namely, the fact that Cambodia is still emerging from a tragic period of its history and only now rebuilding an element of post-war social cohesion as well as developing new infrastructure for its health systems nationally. It was most wise on the part of World Relief to select as the major target for its capacity-building and program implementation the development of the role of the WHEs. Thus, the project could begin to engage in training and capacity- building with households and families even before the health system and its infrastructure had been established. Furthermore, it is recognized by the World Health Organization (WHO)[6] that:

"From 70 – 90% of all sickness care takes place in the home. Household members, especially mothers, make the primary diagnoses of illnesses, assess the severity and likely outcomes, and select among available providers and treatment options."

In addition to building the community's capacity in improved health practices, CGs helped to rebuild the social fabric of the community by increasing the WHE's involvement in civil society, and strengthening community leadership. The project also built the capacity of community leaders through leadership training that encouraged village leaders to get involved in the work of the CGs and make health a priority in their communities. One village leader stated: "The Care Groups are the eyes and ears in the community to report conditions to the health center as needed and also to report back to the village leader."

At the same time as the CE-CSP strengthened grass roots community structures (volunteers and village leaders), Save the Children Australia (SCA) has been strengthening the health institutions in the project area. There is a great working relationship between these two components of the health system as they have found several points of collegial interaction involving community-based family planning activities and implementation of DOTS for treatment and control of tuberculosis at the household. CG volunteers are an essential connection to the community: reporting health information to the health center as well as carrying health messages to the community.

The health centers' staff unanimously in the interviews conducted, acknowledged this collaboration as a major component toward improving the utilization of the new government facilities. The CGs have increased health service utilization, particularly for immunizations (ahead of SCA targets).

2ciii. Health Facilities Strengthening

[6] WHO, World Health Report 2002, Reducing Risks, Promoting Healthy Lives

This evolving shift can be seen in the circular diagrams shown earlier in the ***Community Mobilization*** section. The same collegial understanding and respect is evident even at the level of the Regional Referral Hospital staff.

While this Evaluation was not tasked with assessing the quality of services as administered at the health facilities, informally it was noted that use of the standards of IMCI for health staff still require much more supervision attention. Several outstanding deficiencies were noted as described below:

> Although several staff members at the health facility are responsible for patient care, the IMCI protocol is only used by those who received the training directly from staff at the Regional Referral Hospital. These included: the Health Center Director, the midwife, and the pharmacist. The training was provided with SCA funding as subcontracted through PLAN. Those attending the training had been given some additional training skills before returning to their home facility in order to bring all the facility staff up to the same standard of care. But this cascade approach had not been followed up adequately in the one facility observed.
>
> The application of the IMCI case management protocols for health facilities is being applied only to those children under age 5 years. Why this age cutoff was decided was not clear. The consultant observed a simple case of diarrhea with no dehydration in a seven-year-old managed by a caretaker, yet untrained in IMCI at the health facility; it resulted in the child's referral to the Regional Referral Hospital even though ORS packets were available in the facility's pharmacy.

In addition to the IMCI training for the health facilities, C-IMCI training has also been instituted by the MOH in this CSP area. Two rounds of training with 200 participants each have been conducted so far; some WHEs were included in the groups. Undoubtedly the effective communication relationship established at the community level by the WHEs could be a major addition to any C- IMCI activity. They provide another "built-in" asset already pre-positioned for any C- IMCI programming. These two programs must address coordination requirements to create synergy where it is possible.

It has been the CSP activities as implemented through the WHEs that have helped to link the new facilities with the communities. The WHEs collaborated with health center staff in mobilizing the community to participate in health center outreach activities, especially EPI services. The project provided transportation to health center staff for outreach until 2004 when SCA began strengthening health facilities, including outreach transportation. The WHEs encouraged community members to increase prompt care seeking at health facilities. In addition, the CSP staff have built health center staff capacity to train WHEs at the monthly health center meetings, to help sustain the connection between the community and the facilities. The SPY project will continue collaborating with health centers through out the original and CE-CSP areas.

2civ. Strengthening Health Worker Performance

As noted above, this activity is not included in the CSP objectives. However, WHE representatives meet with health center staff monthly to discuss health issues in the community, coordinate health center outreach schedules, and provide community feedback to the health center staff. There is anecdotal evidence that the feedback given by WHEs to health center staff regarding health worker attitudes resulted in improved health worker performance.

There is definitely a need to align the performance of health workers at the health facilities with what is already generated by the work of the WHEs at the household and community levels. SCA is addressing this important need, although it is unclear what will happen after December of 2008 when their funding ends. Without this, the quality of care for those cases requiring referral might be deficient and discourage the communities in their use of these facilities. Without quality of care at facilities, families are more likely to use traditional healers. Delays in appropriate case management, especially in young children, can result in higher mortality.

It is suggested that the development and endorsement of a Shared Vision (not necessarily the same one developed with the World Relief staff alone) with MOH staff, including the respective health facility staff, can strengthen the relationship already enjoyed between them, the communities, and the Referral Hospital Staff as well.

2cv. Training

The World Relief CSP has demonstrated a very effective training program among the staff, the Behavior Change teams, the WHEs and their supervisors. For the most part, the technique employed has been, "Drip Training," in which the lessons related to specific interventions are gradually introduced and reviewed. The methods have employed adult education approaches with repeated opportunities for practice that can be critiqued among the participants themselves. They have also used drama, role-play, songs, and games to reinforce the training messages.

Already the training staff from the CSP have been engaged in staff training in the new SPY project area. The expanded project will require adjustments from that used in the earlier CSP trainings in order to speed up the training process and expand the intervention subjects to a wider menu quickly. The quality of the training using this new methodology will be evaluated; this has been a considerable adjustment on the part of the training staff previously engaged in the CSP methodology used earlier.

2d. Sustainability Strategy

The usual discussion of sustainability at the termination of a USAID- funded Child Survival Project does not hold for this unique situation in which the continuation of efforts to build on what has been learned will now continue under the SPY project activities. Because of this continuity of partners, approaches, and empowered, experienced staff (all Cambodians except for the SPY project chief of party at the present time), there are unique opportunities for site visits to the existing CSP areas for hands-on training as well as formal training instruction. While the World Relief staff will be closely involved, from the very beginning, the ownership of the activities in the new Project will be much more closely associated with the communities, and health facilities, and the households themselves as "owners" of the inputs as well as the shared results.

Hopefully this lesson will be studied carefully by the donor, USAID, as well. This is an opportunity to truly witness the ability of a CSP to scale up its lessons learned and strategies. While technical excellence and management in small-scale CSP's are an accomplishment, it is only when this work can be truly expanded to address populations in excess of one million or more that the value of these NGO-facilitated projects can truly come into their own.

The project achieved the Sustainability Objectives described in the DIP, illustrated in the following table.

Table 4. Capacity Building and Sustainability Objectives

Light for Life Objectives	Results
1. 75% of salt vendors in the two largest market places will have iodized salt for sale and be able to tell why it is better.	All vendors carry iodized salt (although non-iodized salt is still available at the market). The project trained salt vendors on the benefits of iodized salt. While not measured with a formal survey, project staff asked the vendors in the two largest markets (Stung market and Chimon market) about iodized salt, and 75% of them knew that it helps prevent goiter, improves mental functioning (i.e. school performance in children).
2. Community members will advocate for consistent outreach services (e.g. EPI) to district level authorities.	Community members advocated for consistent EPI outreach services. Since 2005, EPI outreach has occurred monthly in the entire project area.
3. Attrition rate of trained volunteers for reasons other than death, disability or movement out of the project area will be less than 30%.	Overall, 8.0% of the WHEs in the original and extension areas dropped out. (8.7% of the WHEs in the original area dropped out, and 7.6% of the WHEs in the extension area dropped out.)
4. To integrate the WHEs and CG system into a lasting community structure:a) At least 75% of CGs will have 70% attendance at two of their last three meetings.b) In the final two years of the project, at least 65% of CGs will meet even when a HFS is absent.c) Integration of CG structure into the community via links with the village leader and FC.	a) Overall, 81% of CGs had at least 70% attendance in the last three meetings. (84% of CGs in the original area; 78% in the new area) b) The HFS meet with CGs every 2-3 months. When they are not present, the CGs still meet, review lessons, report C-HIS information and take attendance. So the statistics on CG attendance reflect times when HFS are not present. c) Village leaders and Volunteer representatives attend health center Feedback Committee meetings monthly. Also, the Village Leader receives the CG report every month (and is invited to attend the CG meeting)
5. 80% of EPI outreach sessions will be conducted according to schedule.	EPI outreach occurs monthly. 100% of EPI outreach sessions were conducted according to schedule in the original area and new areas during the last year of the project.
6. Build mutual accountability between communities and the MOH as indicated by increased service utilization and the functioning of feedback committees.	Feedback Committee meetings at health centers occur monthly and are attended by village leaders and WHE representatives. Health center staff report increased service utilization and that HCs are consistently meeting their monthly utilization targets.
7. Integrate WR's community-based system with that of the MOH.	Project C-HIS data is integrated into MOH data collection. Project reports are given to HCs monthly at the Feedback Committee meetings. In addition, some project volunteers assist the HC in the collection of family planning and tuberculosis information.

C. PROJECT MANAGEMENT

1. Planning

The program manager felt that the project planning process was comprehensive, and found the DIP report itself very practical. She used the DIP as a reference to guide overall project activities. For example, she utilized the DIP every three months when creating the quarterly

activity schedule to ensure that things were on the right track. Of course, sometimes the project deviated slightly from the work plan schedule, but in general, the schedule was followed and was appropriate.

The project manager did not think anything significant was missing from the planning process or from the DIP report itself. The major change from the work plan was an alteration of the nutrition intervention. In addition to the breastfeeding and complementary feeding interventions, the project planned to implement Hearth program. After initial implementation in four villages, the project discontinued Hearth and focused instead on growth monitoring (see Nutrition intervention in Technical Approach section for more information).

The only item the DIP did not include was the project's interaction with the Commune Council. The project realized the importance of building a relationship with the Commune Council after the 2nd year of the project. Similar to the relationship with the Village Leaders, the project trained the commune council in health issues and began sharing results of monitoring surveys and the C-HIS with the Commune Council, to encourage the CC to prioritize health in their jurisdiction.

2. Staff Training

Considerable changes in the knowledge, skills, and competencies of the project staff that have produced increased confidence in them. They have become adept trainers and have learned solid facilitation skills. Many of them have been promoted up the ranks to go onto supervisory and higher level management positions. The same career advancement ladder will continue to be available for the vast majority of staff as they are now transitioning over to the SPY Project.

In addition to the project's ongoing internal trainings, MEDICAM provided a useful training in 2002 in Community Health Education techniques.

The staff could have used more training in management/administrative functions related to their roles, including more community facilitation skills. They are also keenly interested in more in depth technical health information related to their work. Also, while English classes were provided, additional language training in English would have facilitated interaction with non-Khmer speakers who often visited the project. When outside trainers have come in, there is need for bidirectional simultaneous translation which is both tedious and time-consuming. Yet it is remarkable that this language barrier, both spoken and written, has been successfully dealt with at the staff management level.

Some of the overall lessons learned about building the capacity of the project staff are as follows:

Initially staff worked within the CGs and with village leaders as a priority focus of engagement

Gender issues were identified and discussed; initially women were reluctant to interact with men

Finally, leadership training was instituted at all staffing levels using principles that focus on the whole person. There is a genuine appreciation at a personal level for each member of the staff, which has made for common ground to work out differences as needed.

1. Supervision of the Project Staff

The Senior Project staff project agreed that while the supervision was adequate, the routine supervision activities to all the CGs were very demanding. The staffing provided for three full-time supervisors with one special supervisor for the BCC teams. This was adequate coverage throughout the CSP years of implementation.

Now many of the same staff have been leveraged to work in the SPY project; because their supervisory responsibilities in the SPY project increased slightly, they will likely feel over-extended there as well, but they will receive regular assistance from the Program Manager to address challenges as they arise. There will be a total of seven supervisors assigned under the SPY project. Supervisors meet weekly to discuss day-to-day implementation, and every other month for planning purposes. Each health field staff person is contacted by a supervisor on a monthly basis using checklists, monitoring surveys, and opportunities to focus on "problem villages" as needed. In turn, the supervisors can come to the project manager or her assistant for additional help. In the SPY project, they conduct weekly meetings with the supervisors and hold a special planning meeting on a quarterly basis to address upcoming activities for the next three months. In the CE CSP project, two supervisors were given additional management training in the use of checklists for supervision.

4. Human Resources and Staff Management

In interviews with two World Relief senior management personnel for the CSP project, they agreed that essential personnel policies and procedures are adequately in place; these are tailored to be appropriate at "Country Level" and are in harmony with the code of ethics articulated in World Relief's values.

Both agreed that staff morale is very high as evidenced by longevity of the careers sustained by many of them. The level of staff turnover is at a low 7.6%.

The vast majority of staff are now transitioning to the SPY project. With the startup of the SPY project, there has been some uncertainty among the staff as to their future roles. It was suggested that a SPY project-wide newsletter be instituted in order to diminish the "jitters" usually accompanying such major transitions. This could be one mechanism to improve communications "across the board" as access to computers to disburse this information promptly is limited in Kompong Cham. Finally, there is some concern that staff turnover might increase due to the current lack of competitive salary scales in the new project.

5. Financial Management

Throughout the course of the implementation of the two CSPs, World Relief has met all USAID financial reporting requirements in a satisfactory manner. However, they've realized internally that a stronger financial tracking package would be helpful, and have introduced an interim updated package in the Cambodia country office for FY08. This will benefit the SPY project. World Relief will phase in a an organization-wide financial package starting early calendar year 2008 with the impact in the Cambodia office seen by 2009. The lack of an updated system has created additional work for the CSP backstop at the Headquarters level.

Under the earlier CSP projects, World Relief has not tapped the additional outside technical assistance to develop sustainable financial plans. With the new accounting system in place, tracking of financial data will provide an additional "on the ground" management tool that has not been previously available.

6. **Logistics**

Under the CSP project, the only procurement and equipment distribution items have been the motorbikes and IEC materials. These were easily handled by the project with World Relief providing an adequate maintenance protocol for operation for the vehicles. To date, this is been sufficient to meet the limited logistical requirements under the CSP.

The logistics of SCA's Family Planning and TB programming activities (carried out by the WHEs) have all been handled by SCA.

7. Information Management

a. In addition to baseline and final KPC surveys, the CSP project throughout its implementation has carried on an ongoing series of monitoring surveys together with a CHIS information data collection system. These monitoring surveys were carried out every three to four months after the conclusion of each new (or reviewed) intervention that the WHEs delivered to the community. Feedback from the surveys was very useful

for tracking the effectiveness and progress of the training program. For example, it was information collected from these surveys that led to the decision to drop the Hearth Program activity from the CSP's training activities. It had proven to be too time-consuming and staffing intensive for the benefit it was bringing the program.

b. Throughout this CSP, there has been a systematic method for collecting, reporting and using data at all project levels. These include monthly collection of all births and deaths among children and pregnant women by the WHEs in all their households. This information is fed back to the community as well as shared with the respective health center personnel and village leaders, and on a quarterly schedule, with the Commune Councils. Increasingly, the Commune Council members now desire the same information on a regular monthly basis rather than a quarterly one.

In the interviews conducted, it was interesting to see that indeed the WHEs and many of the village leaders were well aware of the mortality reduction among children under five and pregnant women that had occurred with the implementation of the project. It was also obvious to them that due to the dengue outbreak, under-five mortality had increased.

c. Due to their routine monthly data collection, together with an appreciation for the value of this information, it can be assumed that the staff is sufficiently skilled to continue collecting this information and to apply to future project revisions. The CHIS and the monitoring survey data is already analyzed by the staff in the regular CG meetings as well as information from verbal autopsies. But currently the WHEs are not yet skilled enough to initiate any action based on the data they collect without staff facilitation of a group problem-solving process.

d. As needed, focus groups were carried out with the CGs to probe specific questions the staff identified as potentially requiring follow-up by the volunteers. This was done routinely every three to six months after training had taken place. Also through the LRAs (Local Rapid Assessments), the village leaders and the Commune Council members are provided with additional feedback information.

e. Furthermore, the routine data collected by the WHEs is shared with the health center staff on a monthly basis. Concurrently, the health centers have instituted a community based data collection system monthly basis, but using a cumbersome format that the low-literacy workers are unable to use easily. The format resembles a routine WHO-type list of diseases, many of which are not relevant in the local population. In contrast, the format used by the WHEs is limited to the most relevant information and employs a format they can easily handle. This is a good example of the emerging efforts on the part of the health system to improve its monitoring and evaluation activities. But these must be streamlined using appropriate tools and integrated with other ongoing data collection mechanisms to eliminate duplication of effort.

f. Indeed, the project staff, the headquarters staff, the local level partners in the community each has a clear understanding of what the project has achieved. This was culminated in an event held at the end of the Final Evaluation activity with over 600 participants

attending. During the evaluation itself, it was reflected in the exercise to develop and articulate a Shared Vision.

g. All of the lessons learned from the earlier CSP activities will be employed in the SPY project area. The staff engaged in this project bring with them the confidence and experience of understanding the value of data collection, data feedback and analysis, as a mechanism to institute remedial changes and to meet new challenges.

8. Technical and Administrative Support

a. In addition to the technical support this project received from the HQ backstop and the Director of MCH, this CSP has received on-going external technical support since its project manager, Oun Sivan, has been enrolled in the Master's program in Applied Community Change and Conservation offered by Future Generations. She has maintained continuous correspondence with Dr. Henry Perry, her faculty advisor, in the course. Dr. Perry also conducted an extremely thorough Mid-term Evaluation of this project and is well-versed in addressing any technical issue that may arise during the implementation. He has also advised on operational research techniques that Ms. Oun Sivan chose to pursue related to CSP activities and observations.In addition, Dr. Kevin Starr, Director of the Rainer Arnhold Fellows Program, visited the project in order to evaluate ways to improve the ongoing monitoring and evaluation activities. Dr. Dave Jenkins, Medical Director of Surfaid, participated in this technical visit for purposes of applying lessons learned to Surfaid's work with CGs in Indonesia.

b. The Senior management of the project could not cite any outstanding areas of technical assistance that were missing for them. The project manager felt that her computer skills were sufficient, but that the project would have benefited from some technical assistance in this area.

c. The Headquarters team regularly visit the project on an annual basis from their Baltimore, Maryland office. In the meantime, a continuous flow of e-mails maintains close communication between the CSP field staff and its backup team and headquarters. Both parties are satisfied with this degree of communication and support and have developed a long-standing collaborative working relationship.

9. Mission Collaboration

This CSP activity, although centrally-funded by USAID, demonstrates an excellent example of collaboration and understanding of how a specific child survival project might be leveraged in order to demonstrate synergy with the Mission priorities. It is not by accident that the local Mission has awarded this major expansion grant to World Relief, the SPY project, for the expansion of the effort in Kompong Cham. This new project represents a significant scaling-up

of effort while at the same time, making good use of the lessons learned under the implementation of the earlier two CSPs.

Furthermore, this decision on the part of the local USAID Mission takes into consideration the extensive timeline required in order to develop a solid community-based program that seeks to employ predominately women, a group not customarily considered as key implementers of a health program by the traditional Ministry of Health or even the communities themselves. This time factor must also consider the postwar mentality that is still evident in the country, promoting isolationism and privacy. An unspoken advantage of using WHEs was their ability to penetrate into these households and to gain the confidence of the parents, village leaders, and eventually, the MOH health providers now posted at the health centers and Referral hospital. Even men are now eager to participate more in this effort on behalf of their families.

This CSP also demonstrated the ability to be flexible in the context of the local area changes as new "partners" emerged. But if the foundation of solid community and household acceptance of the WHEs have not been firmly established, the willingness of these new "partners" to collaborate with them may not have been so readily received.

Hopefully the local Mission will continue to support World Relief in this activity as a unique example of sustainable capacity-building of truly community-based preventive and curative health services. As new partners in programs develop in the area, they must seek to find ways to integrate their activities into this solid fabric of community ownership established already. Once again, the notion of a Shared Vision can serve as a central focus for aligning new initiatives in the future.

10. Management Lessons Learned

The most significant management lessons learned were related to the scaling up process of this CSP. The staff transitioned smoothly from the original CSP to the Cost Extension (in which the total population reached more than doubled), but the expansion to the SPY project proved much more challenging (the total population reached through SPY increased to more than 5-fold that of the CE CSP). The staff did not adapt easily to the larger scale and necessary modifications in program implementation. The program manager learned that the project should have provided more training and guidance to the staff in the transition, to clarify roles and changes in program structure. In light of this, the SPY project management team is considering instituting a project-wide newsletter to enhance communication with the large and often geographically dispersed staff. This lesson has been noted by management staff in the country office and will be applied to programs in other sectors as they expand. In addition, the HQ team will take this lesson to other countries and contexts as other Care Group-based projects are also taken to scale.

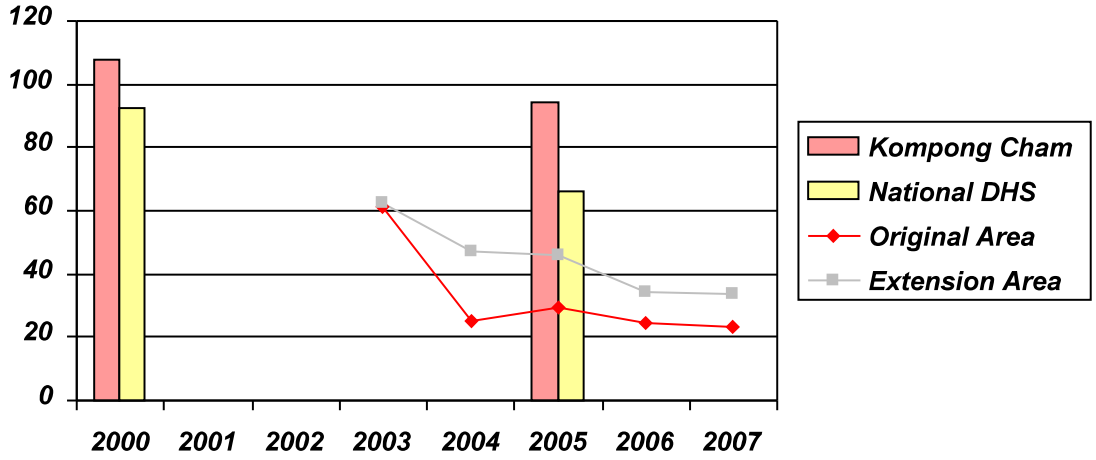
D. OTHER ISSUES IDENTIFIED BY THE TEAM

At the end of the field work, the evaluation team conducted a SWOT (strengths, weaknesses, opportunities, threats) exercise and identified a number of additional items (see Annex D). Among the most exciting of these were in the "opportunities" component. Ideas included increasing the involvement of men and the Commune Council to capitalize on the interest that they have in the health of their families and communities, and improving the WHEs effectiveness in the community through more persistent visits and taking care not to ignore the needs of children over 2 years.

E. CONCLUSIONS AND RECOMMENDATIONS

Success of the project in objectives and outcomes1. The Light for Life project has exceeded its targets for all interventions, in many cases by a very large margin. The data presented throughout this report demonstrate that that the project succeeded in mobilizing individuals and entire communities to achieve remarkable behavior change. The success in these intervention areas resulted in the improved overall health status of children under the age of five and women of reproductive age. Compelling evidence of this improvement in health is the reduction of infant mortality rates within the project area as measured by the project's C-HIS, which are far lower than the rates reported in the 2005 DHS. In the original project area, the IMR went from 61.3 in 2003 to 23.1 in 2007. Similarly, in the extension area, the rate fell from 62.6 to 33.6 in the same time period. The 2005 Cambodia DHS reports an IMR of 94 for Kompong Cham province, where the project is located, and an IMR of 66 nationally.

Graph 5. Comparison of Infant Mortality Rates* for World Relief Project Areas



household level. Local health care providers acknowledge that their ability to reach communities has increased through the work of the WHEs. Additionally, the CG approach has provided a mechanism to make the community component of the MOH's C-IMCI strategy possible within the Ponhea Kriek-Dambe Operational Health District. In fact, the

Light for Life project was so successful that World Relief Cambodia was able to secure the opportunity for significant scale-up through funding by the USAID Mission Cambodia. The SPY project will continue to mobilize communities for health behavior change and cultivate health system linkages to communities and households—ultimately reaching over 1 million people in Kompong Cham province.

2. Obviously, the most important achievement of this CSP has been the continued maturation of the CG approach to truly reaching and continually engaging households in the use of effective preventive and simple curative care interventions. Also simplified, appropriate monthly data collection at the household level provides immediate feedback on progress made, new challenges, and gaps remaining to the most important interface between the households and the formal health system, namely, the WHEs.

Secondly, this project demonstrates the realistic timeline required in order to develop an appropriate training program, a supervising mechanism, and appropriate monitoring and evaluation routine, and most importantly, team cohesiveness -- all components of a necessary complex undertaking involved in community-based health programming.

3. The best practices and lessons learned from this CSP are those that have contributed to the achievement listed above, namely, the development and professional maturation of the CG strategy, together with all the related elements of training, supervision, monitoring and evaluation, as well as the underlying elements of effective leadership creating a team spirit and a shared vision.

4. Using this CSP as an example, it is recommended that USAID, the project staff and the collaborating partners never lose sight of the fact that if a project activity is not firmly "owned" by those considered its beneficiaries, and implemented with committed community agents serving as the interface between the senior management in the households themselves, there will be no sustainability of effort after donor funding evaporates.

With the SPY project being the next phase in this endeavor, there is an opportunity to understand the modifications of a more intense CSP activity called for in order to achieve the target coverage in the scaled up version of the activities.

5. World Relief is using the CG model and lessons learned from this project about its implementation in other child survival projects, including those in Malawi, Rwanda and Burundi, as well as in a pilot project in Indonesia. The lessons learned in this project are most directly influencing the expanded SPY project in Cambodia. World Relief communicates the CG strategy to the broader development community through presentations at professional meetings (GHC, APHA, CSHGP Mini-University) and publications (The CG Manual, the peer reviewed article in Transactions of the Royal Society of Tropical Medicine

and Hygiene, Edward, A. et al., doi:10.1016/j.trstmh.2007. 02.025). In addition, lessons learned from this project were presented at the final evaluation dissemination meeting in Phnom Penh at the conclusion of the evaluation as well as at a CG presentation in April 2007 at an NGO meeting in Indonesia.

6. As a result of the expansion in the SPY project, this CSP greatly enlarged its coverage to population of 1,031,101. This represents about 60% of the total population in the Kompong Cham province (total population 1,736,370).

F. RESULTS HIGHLIGHT

Working with Village Leaders: Increasing Volunteer Motivation and Governance Capacity

When World Relief first submitted a child survival proposal for Cambodia, it was turned down. Among the concerns cited by the review panel was that World Relief's Care Group (CG) Model was too dependent upon volunteers and that projects based on volunteers do not work in Cambodia. In many ways, the review panel had the weight of evidence and experience on its side—the effectiveness of the CG Model had been well documented in African communities (Mozambique and Malawi), but there was not yet any evidence that this innovative strategy for health behavior change and volunteer motivation would work in Asian communities, particularly in Cambodia. Some critics even put forth the generalization that there is less community cohesion in Asian cultures (as opposed to African), which makes volunteer motivation more difficult in Asia, especially in post conflict settings where community structures have been obliterated by war.

The World Relief "Light for Life" project in the Ponhea Kriek district of Kompong Cham province has shown that the CG Model can indeed work in post conflict Cambodia. In fact, the "Light for Life" project has achieved remarkable improvements in the health status of the target population through positive health behavior change and sustained volunteer motivation. Over the past decade, the "Light for Life" project staff have found that the innovative idea of working with village leaders has been essential for their success—both for increasing volunteer motivation and strengthening civil society in Cambodia.

While all CG projects work to some extent with community leaders, the "Light for Life" project spent more time and energy working with village leaders than other World Relief CG projects. The idea to work more intensively with village leaders emerged as staff saw how CGs in communities with supportive leaders were more effective than CGs in communities with disinterested leaders. The "Light for Life" project staff invited village leaders to CG meetings, and then began to recognize their need for leadership training. The project provided training in planning skills, how to conduct a meeting, and how to support

community efforts. Since the village leaders are elected by their local communities, they were interested in "improving" themselves through this training to improve their popularity in future elections.

The CGs in which village leaders attended the meetings had much better attendance by CG volunteers and project staff considered them more cohesive and "successful" than CGs without strong village leader support. By attending CG meetings, the village leaders elevated the status of the volunteers, and community members took them more seriously. The village leaders also encouraged community members to accept CG volunteers and to listen to the health lessons they provided. Volunteers were more willing to reach out to their neighbors and make sacrifices for the good of the community when they were supported and recognized by their village leaders. There was overwhelming staff opinion that the health outcomes were better in communities where village leaders were more involved in CGs and that their involvement was especially influential in villages with less cohesive CGs.

In conclusion, working intensively with the village leaders was a creative solution to address the common community health problem of volunteer motivation and was an essential component to the success of CGs in Cambodia. In addition, working with the village leaders strengthened civil society by increasing the leadership skills and governance capacity of village leaders. The village leaders who participated in leadership trainings were better able to manage themselves and allocate the government resources given to their villages. Many village leaders became more involved in their communities and paid more attention to the interests of the community, particularly those of vulnerable groups like women and children, rather than haphazardly spending government payments and village resources without regard for the needs of the community. Since the innovation of working intensely with the village leaders emerged during the course of the "Light for Life" project, the project did not formally collect data on the impacts of this innovation. World Relief Cambodia will consider gathering data to document these impacts during the course of the "Our Health Villages" expanded child survival project funded by the Cambodia USAID mission.

G. NON-APPLICABLE TOPICS

While the project collaborated closely with health clinics to achieve its objectives, the project did not implement interventions that directly targeted health worker performance improvement or health facility strengthening.

H. OTHER RELEVANT ASPECTS

All relevant aspects of the project appear to have been covered in the final evaluation guidelines.

I. LIST OF PRESENTATIONS/PUBLICATIONS

See Annex E

Attachments

A. Evaluation Team Members and Titles. See Annex F

B. Final KPC Report. See Annex G

C. Evaluation Assessment methodology. See Annex H

D. List of persons interviewed and contacted. See Annex I

E. CD with electronic copy of this report.

F. Special Reports

   a. Hearth Report. See Annex J

   b. Results from Operations Research on Drug Sellers. See Annex A

   c. Volunteer Attrition Survey Results. See Annex B

   d. Pneumonia Treatment Research. See Annex C

   e. SWOT Analysis. See Annex D

G. Project Data Form. See Annex K.

Annex A: Results from Operations Research on Drug Sellers

Prescribing practices by drug vendors in rural Cambodia

Results summary

All drug sellers in 16 villages in Kandul Chrum, Ponhea Krek district, Cambodia, were surveyed in august 2004, to assess their prescribing practices for children and pregnant women. About 60% of the 37 drug sellers are men, and the mean age of drug sellers is 41years. Over half of them have secondary/high school education, at least 94% are literate, and only 5.4% have no formal education at all. Almost all drug sellers speak Khmer well (97.3%), and less than a quarter speak little English. Three-quarters of type DS have no diplomas/certificates; and only 8.1% hold health-related certificates. Approximately 95% of DS have no formal training in drug dispensing/prescribing, but learned by experience, through apprenticeship. About a third of DS sell medicine and injections, the remaining sell only drugs, or drugs and groceries. Majority (91.9%) sell by themselves while others run the business with their wives or siblings. 75% do not have any reference resources or health documents they use regularly. Drug procurement is done locally, with only 8% buying from Phnom Penh.

Only 91.9% offer advice to their clients, with majority of referrals made to health facilities. Only 44% of drug sellers knew danger signs that would require referral to health facilities. 40.5% of drug sellers did not know at what point to refer sick children to health centers. None of them recognized convulsions as a reason to refer a child to a health center. Only 35.1 5 would refer a child with high fever to a health center. Knowledge of danger signs/symptoms of common childhood illnesses was rather low: 54.1% for pneumonia, acute diarrhea – 21.6%, except dysentery – 70.3%

Paracetamol is the single most common drug sold by all drug vendors, and various types of antibiotics are sold by drug sellers. Less than 30% sell ORS and contraceptives, including condoms. All drug sellers selling ORS could mix them correctly and only about a third of

drug sellers sell iron tablets. However, only 2 of 12 drug sellers knew the correct dosage for pregnant women.

75.7% never prescribed medications to children under 2months with acute diarrhea. Of those who do, two- thirds of them gave incorrect prescriptions (in terms of content or duration?). 43% of those who gave treatment for acute diarrhea to children 2-12 months gave incorrect treatment, and 73% of the 78% who gave treatment for 1-5year old with acute diarrhea gave incorrect treatment. Over two-thirds of drug sellers do not give treatment to children under 12months who have dysentery, over half of 1-5 year old with dysentery are treated, and almost 30% of them got incorrect treatment.

75.7% of drug sellers gave no treatment to children with common cold under 2months, and 62.2% gave no treatment to those between 2 and 12months. 83.7% of 1-5 year olds with cold received treatment, but almost half of these (48.6%) received incorrect treatment.

For children under 2 months with pneumonia, 81.1% of drug sellers gave no treatment, 75.7% gave no treatment to children aged 2-12 months, with pneumonia, and twice the number of 1-5 year olds that received treatment for pneumonia, were treated incorrectly.

Almost 92% of drug sellers expressed interest in receiving training on better prescription practices.

Project Response

The project developed job aids with the purpose of training the drug sellers. Unfortunately the Provincial Technical Bureau did not approve our request for permission to train the drug sellers. Instead, the project used the job aids to train the project volunteers, who, in turn, trained the mothers in the project area on pneumonia symptoms, treatment, and referral.

Annex B: Volunteer Attrition Survey Results

WORLD RELIEF CAMBODIA

Light for Life Child Survival Cost Extension Project

Ponhea Kriek – Dum Bai Operational Health District, Kampong Cham Province, Cambodia

Survey of volunteers who <u>Dropped Out</u>

WHE's who drop out had been selected for this survey on June 2007

Name of interviewer:……..

Date:……..

Village:…….....Commune:……

District:……

N=96

Market: 16=16.7% No market: 80=83.3%

1. Name of volunteer and age:

Responses		N=96	
		N	%
Married women N=68=70.8 %	Have children less than 5 years	12	12.5
	Have children 5 years and over	53	55.2%
	No children	3	3.1%
	Pregnant	0	0%
Single		5	5.2%

Widow N=23=24%	Have children less than 5 years	1	1%
	Have children 5 years and over	21	21.8%
	No children	1	1%
The age range of volunteer: year range is 18-66 with mean is 43.26years			

OCCUPATION:

Responses	N=96	
	N	%
a. Farmer	51	53.1%
b. Seller/village shop	24	25%
c. Farmer and seller/village shop	6	6.2%
d. Labor	2	2%
e. Farmer and worker	5	5.2%
f. House wife/keeper	3	3.1%
g. Child taker	4	4.1%
h. Teacher and farmer	1	1%

Family economic living status:

Responses	N=96	
	N	%
a. Poor	28	29.2%
b. Medium	65	67.7%
c. Rich	3	3.1%

Level of education, in what grade did you attend?

Responses	N=96	
	N	%
a. No education	28	29.2%
b. Grade 1-3	42	43.8%
c. Grade 4-6	15	15.6%
d. Grade 7 and up	11	11.5%

2. How long had you been a volunteer?

Responses	N=96	
	N	%
a. 3 months	1	1%
b. 5	3	3.1%
c. 8	2	2.1%
d.12	9	9.4%
e. 24	15	15.6%
f. 36	14	14.6%
g. 48	13	13.5%
h. 60	14	14.6%
i. 72	5	5.2%
j. 74	1	1%
k. 84	14	14.6%
l. 96	5	5.2%
The age range is 3-96 years, mean:47.5 year		

Why do you stop being a volunteer? (record all answers given)

Responses	N=96	
	N	%
a. I am Old and I forget a lot. In addition, I am illiterate	25	26%
b. It is difficult for me	9	9.3%
c. I am tired and I am not well	1	1%
d. Take care my mother	2	2%
e. My group is far from my house	1	1%
f. I have been sick	8	8.3%
g. I have been very busy	51	53.1%
h. Move the house	6	6.2%
i. Go away for work/business	19	19.7%
j. I am poor	8	8.3%
k. I do not know how to teach well	4	4.1%
l. I do not want to do more	1	1%
m. I have a visual problem	1	1%
n. Get depress because of husband has another wife and drunk	2	2%
o. Because of I was pregnant	4	4.1%
p. I was not happy with the leader	1	1%

3. What are the health problems still in your village now? (record all answers given)

Responses	N=96	
	N	%
a. Dengue fever	61	63.5%
b. Pneumonia	16	16.6%
c. Diarrhea	16	16.6%
d. Cold	42	43.7%
e. Skin disease	1	1%
f. Typhoid	25	26%
g. Cough	11	11.4%
h. Dysentery	1	1%
i. Malaria	6	6.2%
j. Tuberculosis	4	4.1%
k. Hepatitis	1	1%
l. Birth flue	1	1%
m. Anemia	1	1%

n. Lack of hygiene	5	5.2%
o. Women do not care of learning from volunteer	2	2.1%
p. Some household do not drink boiled water	1	1%
q. Stomach ache	2	2.1%
r. Vaginal discharge	1	1%
s. Don't know	8	8.3%

What do you think who these problems belong to?

Responses	N=88	
	N	%
a. Family	19	21.5%
b. Myself	53	60.2%
c. Community	82	93.1%
d. Health personnel	1	1.1%
e. Our problem	1	1.1%
f. Woman's problem	2	2.2%
g. Don't know	2	2.2%

4. For you can these problems be solved or not?

Responses	N=88	
	N	%
a. Yes	81	92%
b. No	7	8%

Why not?

Responses	N=7	
	N	%
a. Women do not take a good care enough for their health and children	3	42.8%
b. Can not kill all the mosquitos	1	14.2%
c. Difficult to prevent it	1	14.2%
d. Lack of knowledge about health	3	42.8%
e. Don't know	1	14.2%
f. I do not know the other people idea	1	14.2%

g. Because volunteers do not follow up women every day and every time	1	14.2%
h. Busy	1	14.2%
i. Do not prevent 100% because people do not completely follow all the time	1	14.2%
j. Women do not pay attention to the teaching	1	14.2%

Why can and how it is going to do?

Responses	N=81	
	N	%
a. Sleep in the bed net	26	32%
b. Sanitation in family	37	45.6%
c. Wash hands with soap when dirty	11	13.5%
d. Clean and sanitation living	42	51.8%
e. Drink boiled water	19	23.4%
f. Protect from mosquito bite	10	12.3%
g. Clean around the house	32	39.5%
h. Ask for help from volunteer	4	4.9%
i. Don't know	3	3.7%
j. Go to the health centers when people and children are sick	7	8.6%
k. Have volunteer to teach people about prevention	8	9.8%
l. Have health center and volunteer to help teaching about health	4	4.9%
m. Follow volunteer's teaching and advice	6	7.4%
n. Eliminate mosquito breeding water containers	1	1.2%
o. Take a good care when some get a cold so that it does not become pneumonia	1	1.2%
p. We can reduce disease by applying lesson learned into practice of hygiene	1	1.2%
q. Take a good care of children	1	1.2%
r. Volunteers help people to practice hygiene	1	1.2%
s. Build good well and latrine	1	1.2%
t. Bury the stool	1	1.2%
u. Child should play in the light area	1	1.2%
v. Children should get immunization	2	2.4%
w. Eat enough food	1	1.2%
x. Faithful couple and condom use if have multi partner	1	1.2%
y. Buy medicine for sickness	1	1.2%

z. Put Abet in water container to stop mosquito breeding	1	1.2%

5. If your village do not have volunteer, by now what is happened to the villagers, especially to women and children?

Responses	N=96	
	N	%
a. People don't know about hygiene	14	14.5%
b. Have sickness a lot in the village	61	63.5%
c. No people advise about how to prevent disease	16	16.6%
d. No one to inform about immunization	12	12.5%
e. Have polio disease in children	3	3.1%
f. High death rate in women and children	28	29.1%
g. Don't know	4	4.1%
h. Difficult for pregnancy women because there is no one to teach them prenatal care	3	3.1%
i. Don't know how to prevent disease	2	2%
j. Women and children live in the high risk infectious community	1	1%
k. If there is no volunteers, community will have preventable diseases and continue to be even more problems	1	1%
l. Don't know about health	13	13.5%
m. Will have 7 preventable diseases such tuberculosis, polio, diphtheria, tetanus, whopping cough, and measles and death from delivery	2	2%
n. There will be no immunization in children and women	11	11.4%
o. No one is going to teach about health	2	2%
p. Spend a lot of money for health care	1	1%
q. Women don't know how to take care children well	5	5.2%
r. Have diarrhea, anemia and other health problem	1	1%

6. By your opinions, is the work of volunteers benefit to your family and community or not?

Response	N=96	
	N	%

a. Yes	96	100
b. No	0	

Comments/explaination:

Response	N=96	
	N	%
a. The volunteers teach women about health issue	84	87.5%
b. The volunteers give advice to the women in the community	76	79.1%
c. Mother know how to take care her child well	3	3.1%
d. When people get sick the WHE tell them go to the health center	10	10.4%
e. Call women and children to get immunization	11	11.4%
f. Help women to change unhealthy behavior	3	3.1%
g. Help the commune developing in health	3	3.1%
h. To improve the health of women and children, and improve family economy	2	2%
i. call for a meeting	2	2%
j. Help community to improve their lives	3	3.1%
k. help community to know about hygiene	1	1%
l. Educate women	1	1%
m. Teach Birth Spacing	1	1%
n. Teach people to prevent disease and how to take care their health	1	1%
o. Increase health seeking behavior and reducing death in the community	4	4.1%
p. Help women and children to have a healthy life and survival	3	3.1%
q. Review the health lessons and tell mother to take a good care and improve	4	4.1%
r. Teach the warning signs and tell mother to take a sick child to the health center	1	1%
s. It is very important because it helps community improve health	2	2%
t. Reducing poverty and diseases, know how to take care children	2	2%
u. Don’t know	1	1%
v. See there is no sickness in the community which is encouragement	1	1%

7. What health lesson do you want to learn more from a village volunteer?

Responses	N=96	
	N	%
a. Diarrhea	2	2.1%
b. Pneumonia	5	5.2%
c. Dengue fever	27	28.1%
d. Vaginal discharge	4	4.2%
e. Gynecology	5	5.2%
f. Typhoid	13	13.5%
g. Hepatitis	5	5.2%
h. Meningitis	9	9.4%
i. Don't know	10	10.4%
j. No I am busy. I do not want to learn	5	5.2%
k. Learn how to prevent disease	1	1%
l. How to take care children and family	3	3.1%
m. I want to learn about the health of women and prenatal care	3	3.1%
n. Any health lesson, all the health lessons and prevention	17	17.7%
o. Malaria	3	3.1%
p. TB	4	4.1%
q. Birth spacing	4	4.1%
r. HIV/AIDS	6	6.2%
s. Want to learn but I am not available	1	1%
t. Birth flue	11	11.4%
u. Hygiene and sanitation	1	1%
v. How to treat women's diseases	1	1%
w. Follow volunteer's advice	1	1%
x. STD	1	1%
y. Stomach ache	2	2%
Want to learn how to teach other people the lesson well	1	1%
Constantly review the health lesson	1	1%
Do not want to learn because I am old	1	1%
Counseling	1	1%
Whopping cough	1	1%

8. For your opinion what can women and village leader do to support volunteer to continue working in the village?

Responses	N=96	
	N	%
a. Follow the volunteers recommendation	40	41.6
b. Women should interact with the volunteer during training	55	57.2
c. Tell other communities about the women health educator	5	5.2
d. Don't know	7	7.2
e. Involve all activities of volunteers	2	2
f. Village leaders should tell people to learn with the volunteer	2	2
g. Do not discriminate for poor volunteer	1	1
h.Pay attention to the teaching of the volunteer, listen to what they teach and welcome the volunteer	11	11.4
i. Praise volunteer for their work	13	13.5
j. Thank to volunteers for their teaching and advice	13	13.5
k. Respect, follow, trust, and encourage them to keep working in the village because it is good work.	16	16.6
l. Tell other people come to learn and seek advice from volunteers	2	2
m. Village leader cooperate with volunteer, attend meeting	10	10.4
n. The young women should be volunteer and continue to help women and children	1	1

WORLD RELIEF CAMBODIA—Survey of ACTIVE Volunteers

Light for Life Child Survival Cost Extension Project

Ponhea Kriek – Dum Bai Operational Health District, Kampong Cham Province, Cambodia

WHE's had been selected for this survey on June 2007

Name of interviewer:……..

Date:……..

Village:…….....Commune:……

District:……

N=120

Market: 26=21.7% No market: 94=78.3%

1. Name of volunteer and age:

Responses		N=120	
		N	%
Married women N=99=82.5%	Have children less than 5 years	28	23.3
	Have children 5 years and over	66	55%
	No children	5	4.1%
	Pregnant	4	3.3%
Single		3	2.5%
Widow	Widow	18	15%
	Have children less than 5 years	1	0.8%
	Have children 5 years and over	16	13.3%
	No children	1	0.8%
The age range of volunteer: 18-65 years, mean:			

OCCUPATION:

Responses	N=120	
	N	%
a. Farmer	92	76.7%
b. Seller/village shop	8	6.7%
c. Farmer and seller/village shop	8	6.7%
d. Labor worker	4	3.3%
e. House keeper/house wife	4	3.3%
f. teacher	1	0.8%
g. TBA	1	0.8%
h. Taxi driver	2	1.7%

Family economic living status:

Responses	N=120	
	N	%
a. Poor	21	17.5%
b. Medium	96	80%
c. Rich	3	2.5%

Number households take care:

Whe's house hold number responsibility is ranged from 6-38 households and the mean is 15 households.

Are you able to manage them?

Responses	N=120	
	N	%
a. Yes	118	98.3%
b. No	2	1.7%

Location of volunteer's house related to her women's households, where is your group?

Responses	N=120	
	N	%
a. Among her group	86	71.7%
b. Away from her group	34	28.3%

Level of education, in what grade did you attend?

Responses	N=120	
	N	%
a. No education	21	17.5%

b. Grade 1-3	51	42.5%
c. Grade 4-6	27	22.5%
d. Grade 7 and up	21	17.5%

2. How long have you been a volunteer?

The year range is 2 months to 112 months and the mean is 60 months.

Why do you want to be a volunteer? (descript all incentive motivated)

Responses	N=120	
	N	%
a. I want to help teaching health to women and community	86	68.2%
b. I want to help community to improve health, not sick	82	68.2%
c. I want to learn about health	89	74.2%
d. I want to help women know how to take care children well	75	62.5%
e. I want to help community know about health	78	65%
f. Being volunteer can help community to improve life	73	60.8%
g. Want women to know the dangerous signs and go to the health center	26	21.7%
h. To help women and children to be healthy	3	2.5%
i. Village leader want me to be a volunteer and I want too	6	5%
j. To help women and children to be healthy	20	16.7%

3. In the last months, how many times did you teach or visit your women?

Responses	N=120	
	N	%
# of times visited = 0	4	3.3%
1 time	55	45.8%

2 times	30	25%
3 times	21	17.5%
4 times	6	5%
5 times	1	0.8%
6 times	3	2.5%
Number of time range is 0-6 time with the mean is 1.875 time in the last month of the survey.		

Number of women, did you visit in the last month?

Responses	N = 120	
	N	%
# of women visited=0	4	3.3%
2 women	5	4.2%
3 women	7	5.8%
4 women	11	9.2%
5 women	21	17.5%
6 women	6	5%
7 women	7	5.8%
8 women	7	5.8%
9 women	1	0.8%
10 women	24	20%
11 women	1	0.8%
12 women	8	6.7%
15 women	3	2.5%
16 women	1	0.8%
18 women	4	3.3%
20 women	3	2.5%
22 women	1	0.8%
30 women	4	3.3%
31 women	1	0.8%
60 women	1	0.8%
Total women visited range from 0-60 women and with the mean is 9.192		

4. How many times did you teach your women in the last three months?

Responses	N = 120	
	N	%
# of times visited = 0	4	3.4%
1 time	1	0.8%
2 times	5	4.2%

3 times	51	42.5%
4 times	9	7.5%
5 times	8	6.7%
6 times	16	13.3%
7 times	6	5%
8 times	4	3.3%
9 times	7	5.8%
10 times	1	0.8%
11 times	2	1.7%
12 times	2	1.7%
13 times	1	0.8%
15 times	2	1.7%
20 times	1	0.8%
Number of time range is 0-20 with the mean is 4.933.		

Number of women visited by WHE in the last three months:

Response	N=120	
	N	%
# women visited = 0	4	3.3%
5 women	1	0.8%
6 women	5	4.2%
7 women	2	1.7%
8 women	1	0.8%
9 women	1	0.8%
10 women	6	5%
11 women	4	3.3%
12 women	7	5.8%
13 women	2	1.7%
14 women	1	0.8%
15 women	12	10%
16 women	3	2.5%
17 women	4	3.3%
18 women	4	3.3%
19 women	1	0.8%
20 women	9	7.5%
21 women	2	1.7%
22 women	1	0.8%
23 women	2	1.7%
24 women	3	2.5%
25 women	4	3.3%
26 women	2	1.7%

27 women	1	0.8%
28 women	2	1.7%
29 women	1	0.8%
30 women	11	9.2%
31 women	1	0.8%
35 women	1	0.8%
36 women	4	3.3%
38 women	1	0.8%
40 women	2	1.7%
45 women	2	1.7%
48 women	1	0.8%
50 women	3	2.5%
55 women	1	0.8%
56 women	1	0.8%
60 women	3	2.5%
68 women	1	0.8%
80 women	1	0.8%
90 women	1	0.8%
120 women	1	0.8%
Total women visited and taught range is from 0-120 women, and with the mean is 24.183.		

N=4

5. In the last six months, how many times did you teach or visit your women? (for a volunteer who did not have any answer for the last three month visit)

Number of time: ……

Total women visited:……

There are only 2=50% volunteers out of 4 who did not visit her household in the last three month but they visited them in the last six month. Both of them visited their women 3 times in the last six month with the mean is 1.5 times and the women visited range is 0-21 women, and with the mean is 8.25 women.

N=120

6. When was the last time of your visit ?

Date:…

Responses	N=120	
	N	%
May	104	86.7
June	14	11.67
None	2	1.67

7. What or any health problem do you think that your community still has?

Responses	N = 120	
	N	%
a. Dengue fever	53	44.2%
b. Pneumonia	43	35.8%
c. Diarrhea	32	26.7%
d. Cold	74	61.7%
e. Skin disease	3	2.5%
f. Typhoid	17	14.2%
g. Cough	13	10.8%
h. Birth flue	1	0.8%
i. Hepatitis	2	1.7%
j. Tuberculosis	1	0.8%
k. HIV	1	0.8%
l. Malaria	7	5.8%
m. Chicken pock	1	0.8%
n. Gyneco problem	6	5%
o. Women do not care to learn health lessons, forget it quickly.	1	0.8%
p. Still some mothers do not take her child to get immunization because of fever	1	0.8%
q. Sore throat	2	1.7%
r. Anemia during pregnancy	1	0.8%
s. No disease or problem	3	2.5%
t. Don't know	3	2.5%

8. How could you and your community prevent or stop these problems?

Responses	N = 120	
	N	%
a. Sleep in the bed net	28	23.3%
b. Sanitation in family	84	70%
c. Wash hands with soap when dirty	15	12.5%
d. Clean and sanitation living	90	75%
e. Drink boiled water	38	31.7%
f. Protect from mosquito bite	19	15.8%
g. Clean around the house	47	39.2%
h. Eat more often when sick	4	3.3%
i. Drink more often when sick	8	6.7%
j. Go to the health center	41	34.2%
k. Teach mother about health	32	26.7%
l. Teach about prevention of disease, hygiene, home care, delivery at the health center.	1	0.8%
m. Protect spreading disease such as wear a mass when people have flue.	2	1.7%
n. Sent pregnant woman to the health center for prenatal care.	1	0.8%

9. What do women think about you and your work as volunteer, how much value of your work from your women?

Responses	N = 120	
	N	%
a. People praise volunteers that help and teach them	73	60.8%
b. Women encourage and value volunteer	98	81.7%
c. Women pay attention and listen to volunteer's teaching	94	78.3%
d. Women give thank to the volunteers for their help	51	42.5%
e. Follow the teaching of volunteers	23	19.2%
f. Village leaders and villagers support volunteers	1	0.8%
g. Before did not value but now begin to have value	1	0.8%
h. Less value and not much participation when teaching	2	1.7%
i. Some people want to learn and some do not want to learn	1	0.8%
j. Seek advice and help from volunteers	1	0.8%
k. Women participate in teaching	1	0.8%

10. From having village volunteers, do you think they are a benefit of your community and your family or not?

Responses	N=120	
	N	%
a. Yes	120	100%
b. No	0	

Why or why not:

Responses	N=120	
	N	%
a. Volunteers help people to have more health knowledge	90	75%
b. Help teach women about health, hygiene, dangerous signs, nutrition etc.	106	88.3%
c. Call women to recognize about disease and could help	12	10%
d. Teach women to recognize about disease and could help	96	80%
e. Help refer patients to the health center	13	10.8%
f. Help community to reduce disease	35	29.2%
g. Help reduce death in children and women	3	2.5%
h. I have to teach people what I have learned	1	0.8%
i. It is the need of community to have volunteers teaching women and people about health and prevent disease so that women know how to take care children well and save money	1	0.8%
j. Volunteers provide knowledge about health to the families and community	1	0.8%
k. To help save money from sickness because they listen to the teaching and apply knowledge into their lives	3	2.5%
l. Know more health lessons in the community	1	0.8%

11. Do you think that your community needs you and other volunteers?

Responses	N=120	
	N	%

a. Yes	120	100%
b. No	0	

12. Why need?

Responses	N=120	
	N	%
a. Because volunteers help teaching health in the community	109	90.8%
b. Because community want to learn about health	98	81.7%
c. Call women and children for immunization	15	12.5%
d. To give information about health to community	105	87.5%
e. Seek advice and help from volunteers	11	9.1%
f. Reduce disease and prevention	8	6.7%
g. Have knowledge without pay	1	0.8%
h. People do not have knowledge much about health so that they need volunteers	1	0.8%
i. Volunteers help to improve life of people and family by increase their knowledge.	1	0.8%
j. People want to learn about health, diseases and medicine so that they could save money from sickness	1	0.8%
k. If my village does not have volunteers, there will be many diseases.	1	0.8%
l. Save money from sick	1	0.8%

13. What are the health messages you want to learn more?

Responses	N=120	
	N	%
a. Diarrhea	3	2.5%
b. Pneumonia	21	17.5%
c. Dengue fever	24	20%
d. Whopping cough	1	0.8%
e. Vaginal discharge	9	7.5%
f. Gynecology	16	13.3%
g. Typhoid	8	6.7%
h. Hepatitis	23	19.2%
i. Meningitis	22	18.3%
j. HIV/AIDS	8	6.7%

k. Stomach ache	1	0.8%
l. Malaria	5	4.2%
m. Prenatal care	5	4.2%
n. Sore throat	1	0.8%
o. Birth flue	12	10%
p. I want to learn any health lessons or more lessons	26	21.6%
q. I want to learn about medicine	4	3.3%
r. I want to learn to be TBA	2	1.7%
s. I want to learn about the health of women and children	5	4.1%
t. STD	1	0.8%
u. I want to learn reproductive health and birth spacing	2	1.7%
v. Cholera	1	0.8%
w. Cold	3	2.5%
x. Diphtheria	1	0.8%
y. Hygiene	1	0.8%
z. Kidney problem	1	0.8%
Asthma	1	0.8%
Tuberculosis	1	0.8%

14. What you, your people and village leader can do to support the volunteer's work in your village to continue?

Responses	N=120	
	N	%
a. Follow the volunteers recommendation	9	7.5%
b. Women should interact with the volunteer during training	57	47.5%
c. Tell other communities about the woman health education	44	36.7%
d. I do not have an idea to help volunteers to continue their work	3	2.5%
e. Village leader support, attend meeting and work with volunteers	81	67.5%
f. Praise volunteers and thank	55	45.8%
g. Listen to volunteers	33	27.5%
h. Don't know	2	1.7%
I. Volunteers need support and encouragement from village leaders and community such as praise, listen, participation, value the volunteer's work	7	5.8%

15. Do you want to keep working as volunteer in your village when the project staff stop coming?

Responses	N	
	N	%
a. Yes	109	90.8%
b. No	11	9.2%

Why?

Responses	N=109	
	N	%
a. I want to improve my knowledge about health	71	64.2%
b. I want to help women and people in my village to improve their knowledge	94	86.2%
c. It is very important for people to have volunteers in the community for help	20	18.3%
d. I want to educate people in community	76	69.7%
e. I want people, mother and children to be healthy	50	45.9%
f. To improve my community. Because I saw a significantly health improvement in the community. Less disease and save money	61	55%
g. I want to continue to help my community and young people for the next generation to know about health	9	8.2%
h. Women seek advice and help from me, they know a lot	3	2.7%
i. There is no one to replace me	1	0.9%

Why not?

Responses	N=11	%
a. Getting old and I do not remember well and forget a lot, tired and I am not well	7	63.6%
b. Tired, I am not well	1	9%
c. Work is difficult	1	9%
d. Poor, busy	1	9%
e. I am getting old and then give opportunity to	1	9%

young people to do it		

Annex C: Pneumonia Treatment Research

WORLD RELIEF WORLD RELIEF CAMBODIA

"LIGHT FOR LIFE" CHILD SURVIVAL PROJECT:

"ASSESSING HEALTH KNOWLEDGE AND PRACTICES IN HOUSEHOLDS FOR CHILDHOOD PNEUMONIA"

Program Location: In the Chey Nikum and Chipaing Health Center Catchments of Ponhea Kriek-Dombe Operational District, Kampong Cham Province, Cambodia

Author: Sivan Oun, student of the Master Program

Email address: soun@wr.orgEditor: Dan Robinson and Sheila Mckean, Professors
Dates: December 13th, 2007

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Acronym List

ARI Acute Respiratory Infection

CA Control Area

CG Care Groups

C-HIS Community Health Information SystemCIPS Cambodia Inter-Censal Population Survey CSP Child Survival ProjectDHF Dengue Hemorrhagic FeverDHS Demographic Health SurveyGDP Gross Domestic Product

HC Health CenterHFS Heath Field StaffHIS Health Information SystemIA Intervention AreaIMR Infant Mortality RateMOH Ministry of HealthOHD Operational Health DistrictU5MR Under Five Mortality Rate

WHE Women Health Educator (volunteer)

A. EXECUTIVE SUMMARY

INTRODUCTION:

Cambodia is located in Southeast Asia, bordered by Laos, Thailand, & Vietnam. Most of the country is flat, with the exception of the southwest and north, which are mountainous. About 60% of Cambodia is forested. The central basin is fertile farm land that has the Mekong and Tonle Sap rivers flowing through it. The Mekong passes through the entire length of Cambodia. The total estimated population in 2004 was 13,091 with 1.81% Annual Growth Rate of Population 1998-2004 (Cambodia Inter-Censal Population Survey 2004). The national literacy rate is 73.6% for people over 15 years of age; the education level, while slowly rising, is still very low.

In 30 years of Civil War, which included genocide, the public health infrastructure of Cambodia was devastated. Everything was almost destroyed and Cambodia became a poor country. As a result, people now face the burden of disease, a lack of community, limited resources, unproductive and poor quality health care and education, robbery, physical handicaps from landmines, and high illiteracy rates. There are challenges to health service delivery in Cambodia, especially for people who live in remote rural areas. As a result of a lack of human resources, the quality of health care services is poor. The low instance of people seeking health care results from a lack of knowledge about health services or a low desire to obtain the poor quality services.

Over one third of Cambodia's population still lives below the poverty line with infant and under five mortality rates (U5MR) ranking among the highest in the world, despite significant progress over the several past decades in economic and social development. Although there has been a considerable decline in under five mortality rate (U5MR) trends since the Khmer Rouge rule, Cambodia still ranks 35th in the world with a U5MR of 125 – the worst in Asia. Infant mortality rates (IMR) are also high (95.1/1000) and reflective of the population's poor health status. Contrary to trends elsewhere, post neonatal mortality (58/1,000) (between first month and first birthday) accounts for 61% of overall IMR and is much higher than neonatal mortality (37/1,1000) (DHS 2000).

Low birth weight, poor maternal nutritional status, and neonatal tetanus are major contributors to infant mortality in Cambodia. Acute respiratory infection (ARI), diarrhea, malaria, measles and dengue hemorrhagic fever are also contributors. However, malaria incidence (reported in district records and corroborated by the child survival project's (CSP) contact with households) is not high in Ponhea Kriek, with cases that do present at HCs (15 children in 2000)

*coming from outside the catchment area. Other health issues are of much greater concern. For example, only 39.9% of children 12-23 months are fully immunized nationally and coverage in Kampong Cham province is even worse at 28.3%. The DHS 2000 reported 19% of children nationally (23% in Kampong Cham) had ARI in the 2 weeks prior to the survey.*Two administrative districts, Ponhea Kriek and Dambai, Kampong Cham province were chosen as the project site based on the poor health status and relatively rural, marginalized population. The districts' weak health infrastructure underscored the need for teaching the population to prevent illness and simultaneously presented itself as an opportunity for desperately needed capacity building, especially at the community level.

Over the course of the child survival project, a total of 318 Care Groups of village volunteers have been established in all of the villages of the two districts (Ponhea Kriek and Dambai). Each volunteer covers an average of 15 households in their neighborhood, where they do health education and community mobilization. The number of volunteers varies from village to village according to the number of households.

Among the 16 health centers in the project area, two of them were randomly selected for my research on the knowledge, diagnosis and treatment of childhood pneumonia. The Cheynikum Health Center area was chosen for the intervention and the Chipaing Health Center was chosen for the control. Both areas are located in the Ponhea Kriek district. Cheynikum Health Center catchment area is in the Western part of the district and has eight villages (total population=6,146) and Chipaing Health Center catchment area is in the Eastern part of the district and has ten villages (total population=12,993). An intervention area and control area were chosen for the purposes of comparison, so that the impact of the intervention could be evaluated.

IMPLEMENTATION:

The research was implemented from January 2007 to April 2007. In January 2007, two baseline surveys were done at the same time in both areas. In February 2007, 83 volunteers were trained to conduct home visits in the Cheynikum Health Center. In the control area, volunteers did teach the key health messages of ARI for childhood pneumonia, but not the intervention messages. In May 2007, two final surveys were completed in both areas to have data available for comparison.

RESULTS:

100 women with children under five years were randomly selected from each area to be interviewed. Knowledge about the warning signs/symptoms of childhood pneumonia, while high to begin with, increased from 83% at baseline to 88% at final in the Intervention Area (IA) and 55% at baseline to 84% at final in the Control Area (CA).

The percentage of mothers who reported that they used antibiotics to treat their child with pneumonia and used it correctly (mg/tablet, how much by age, time/day and duration) increased from 4=21% to 8=24.2% in IA and decreased from one mother at the baseline to zero at the final in CA.

The percentage of mothers who knew how to correctly use the two types of Bactrim (480mg and 960mg) (mg/tablet, how much by age, time/day and duration) increased from 7% at the baseline to 18% at the final survey in IA, and it also increased from 1% at the baseline to 3% at the final in CA.

Mothers who knew how to correctly use Amoxicillin, both the 250mg and 500mg (mg/tablet, how much by age, time/day and duration) increased from 2% at the baseline to 10% at the final survey in IA, but decreased from 2% at the baseline to 1% at the final in CA.

In IA, the percentage of mothers who knew how to correctly use both Bactrim (480mg and 960mg) and Amoxicillin (250mg and 500mg) (mg/tablet, how much by age, time/day and duration) was 1% at the baseline survey and increased to 10% at the final survey. In the control area, the percentage remained the same for both surveys (1% at the baseline and at the final).

The final survey showed that 37% of children in IA and 23% in CA were sick with pneumonia, but among those who were sick none died in the last 8 months.

B. INTRODUCTORY INFORMATION

B.1. Community description:

B.1.a. Basic demographic information:

The "Light for Life" Child Survival Project (CSP) currently operates in Ponhea Kriek and Dambai districts in Kampong Cham Province located about 200 Km North/East of Phnom Penh. The area has a population of 184,642 and is primarily rural with some urban and peri-urban areas. The majority of the

population is ethnic Khmer and Buddhist with a 20% Muslim minority. In this operational health district, CSP covers 16 health centers (HC) run by the Ministry of Health (MOH) in this region. Each HC has six staff to reach out to the catchment areas, providing health services both at the HC and the community levels. The "Light for Life" CSP project had been working to improve the health services and health status of women and children, mobilizing the community, and providing health knowledge by training volunteers in Care Groups throughout this operational health district (OHD). In the Ponhea Kriek district, among the 16 total HCs, Cheynikum HC was selected as the implementation for my research practicum (called IA or intervention area) with 8 villages and a total population of 6,146. Chipaing HC was selected to be the control area with 10 villages and a total population of 12,993.

The areas chosen for this project, Ponhea Kriek and Dambai districts, are in Kampong Cham Province. Kampong Cham province is located in the eastern part of Cambodia, very close to the Vietnam border. It is Cambodia's most populous province (more than 1.7 million), and home to Cambodia's third largest city, Kampong Cham. Today, Kampong Cham Province produces a wide variety of agricultural products, with fruit and cashew nut orchards, rubber plantations, and of course, rice fields. Fishing is an important livelihood here as the Mekong River divides the province in half. Access via road to Vietnam has become easier, and it has become an important commercial route for goods transported to and from Vietnam.

Cambodia is located in Southeast Asia, bordered by Laos, Thailand, & Vietnam. Most of the country is flat, with the exception of the southwest and north, which are mountainous. About 60% of Cambodia is forested. The central basin is fertile farm land that has the Mekong and Tonle Sap rivers flowing through it. The Mekong passes through the entire length of Cambodia (See map of Cambodia in annex 1).

Cambodia's total population as of 2006 was 13,881,427, while GDP per capita (2006 est.) was $2,600. The GDP by sector is as follows: agriculture, 35%; industry, 30%; service, 35%. Forty percent of the population lives below the poverty line (2004 est.) while the labor force employs about 7 million (2001 est.). In 2000, the unemployment rate was 2.5%. In 2005, Cambodia received international aid worth half a billion US Dollars (CIA World Factbook).

In terms of health, as of 2006, the infant mortality rate was 69 deaths/1000 live births and life expectancy at birth was 59 years. Thirty-three percent of the population is under 15, and 50% is under 21. Other infectious diseases include bacterial and protozoal diarrhea, hepatitis A, typhoid fever, dengue fever, malaria, and Japanese encephalitis (in some areas). All of these preventable illnesses often prove deadly because of the poor health of the general population and the lack of

basic health care facilities. Some cases of avian flu have been identified among birds, but it poses a negligible risk to healthy humans at this time.

Health indicators continue to be among the lowest in the region. The maternal mortality rate averages 473 deaths per 100,000 live births. Similarly, the mortality rate for children under the age of five is 125 deaths per 1,000 live births; one in every eight children born in the country dies before his or her fifth birthday. The infant mortality rate is 95 per 1,000 live births. At the national level, only one-third of all births take place in a health facility with trained medical personnel present.

Seventy-three percent of Cambodians over 15 years of age can read and write; however, the education level, while slowly rising, is still very low. Far more women than men are illiterate. Most education is still based on a "rote" (repeat and memorize) system. Until about 8-10 years ago, the entire national education system did not teach any science or social sciences. Spatial awareness is not strong in Cambodia; most people cannot read or interpret maps, charts or graphs. Teaching and using higher levels of critical thinking skills is still not part of the national education or teacher training systems. As a result, most Cambodians find it difficult to understand and discuss conceptual or abstract ideas. Ideas and thoughts must be taught in practical, concrete ways in order for them to be understood. Story telling is therefore an effective way to communicate ideas and principles.

B.1.b. Historical information:

In 1970, Civil War began in Cambodia, followed by the Communist Khmer Rouge (genocide) from April 1975 until the 7th of January 1979. In 1975, all the people who lived in Phnom Penh were chased away by Communist Khmer Rouge (CKR) forces. All cities and towns were captured and evacuated by the CKR. At least 1.5 million Cambodians died from execution, forced hardships, or starvation during the Khmer Rouge regime under the direction of Pol Pot. The December 1978 Vietnamese invasion drove the Khmer Rouge into the countryside, began a 12-year Vietnamese occupation, and touched off almost 15 years of further Civil War.

The 1991 Paris Peace Accords mandated democratic elections and a ceasefire, which was not fully respected by the Khmer Rouge. UN sponsored elections in 1993 helped restore some semblance of normalcy under a coalition government. Factional fighting in 1997 ended the first coalition government, but a second round of national elections in 1998 led to the formation of another coalition government and renewed political stability. The remaining elements of the Khmer Rouge surrendered in early 1999. Some of the remaining Khmer Rouge leaders await trial by a UN-sponsored tribunal for crimes against humanity. Elections in July 2003 were relatively peaceful,

but it took one year of negotiations between contending political parties before a coalition government was formed. As the result of all these tragedies and following the political struggles, the country began with nearly zero human resources; the population lacks education and productive skills, particularly in the poverty-ridden countryside, which suffers from an almost total lack of basic infrastructure.

Rebuilding:

After the first election, foreign aid began to arrive, and has been provided since then to rebuild this country. The Cambodian government, with assistance from the international community, has made an effort to make political and government reforms, including health system reforms. UNICEF, WHO and NGOs (both international and local) actively assist the health sector, especially in areas of most need.

Funded by USAID, World Relief Cambodia "Light for Life" CSP worked in 5 communes in Ponhea Kriek district from 1998 to 2002, where the greatest need was found. Then from October 2002 to September 2007, the project was funded to reach all villages in the two districts of Ponhea Kriek and Dumbai. World Relief has actively worked to facilitate and assist the MOH at the health center level to meet their goals through mobilizing and educating the community for positive health seeking behaviors. Health services have been improved both at the health post and in community outreach. As a result, there has been a decrease in the mortality and morbidity of children under five and a lowering of the maternal mortality rate (Project HIS).

Although there has been a considerable decline in under five mortality rate (U5MR) trends since the Khmer Rouge rule, Cambodia still ranks 35th in the world with a U5MR of 125 – the worst in Asia. IMR is also high (95.1/1000), reflective of the population's poor health status. Contrary to trends elsewhere, post neonatal mortality (58/1,000) (between first month and first birthday) accounts for 61% of overall IMR and is much higher than neonatal mortality (37/1,1000) (DHS, 2000). Low birth weight, poor maternal nutritional status, and neonatal tetanus are major contributors to infant mortality in Cambodia. Acute Respiratory Infection (ARI), diarrhea, malaria, measles and Dengue Hemorrhage Fever (DHF) also contribute. However, malaria incidence (reported in district records and corroborated by the child survival project's (CSP) contact with households) is not high in Ponhea Kriek, where those cases (15 children in 2000) that do present at HCs come from outside the catchment area. Other health issues are of much greater concern. For example, only

39.9% of children 12-23 months are fully immunized nationally and coverage in Kampong Cham province is even worse at 28.3%. The DHS 2000 reported 19% of children nationally (23% in Kampong Cham) had ARI in the 2 weeks prior the survey. Rates for malnutrition in under 5 children are, 45% stunted (21% of are severely stunted), 45% underweight (13% are severely underweight), and 15% wasted (4% are severely wasted). Poor child health status reflects a lack of essential health services and health seeking behavior among mothers.

Episodes of pneumonia commonly occur along with diarrheal illnesses. Mortality in children sick with both pneumonia and diarrhea is greater than mortality from either illness alone. Although many interventions have been implemented, pneumonia remains the most prevalent disease of all childhood illness (see Table 1). Further steps should be taken through an intervention of pneumonia diagnosis training and antibiotic treatment to see how effectively new approaches can contribute to reducing child mortality in Cambodia.

Table 1:

Main Health Problem addressed in Outpatient Consultation among Under-Five Children 2002 (Source: National Health data 2003, reported by MOH)	
Diarrhea	10.491%
ARI	39.223%
Malaria	0.870%
Cough >21 days	0.860%
Neonatal Tetanus	0.001%
Pertussis	0.001%
Measles	0.020%
AFP	0.001%
Other	48.533%
Main Health Problems among Under-five Inpatients, 2002 (Source: National Health data 2003, reported by MOH)	
Diarrhea	11.746%
Dysentery	2.051%
ARI	20.764%
Malaria	2.210%
Neonatal Tetanus	0.199%
Other Tetanus	0.498%
TB	8.670%
DHF	5.355%
Meningitis	1.025%
Measles	0.030%
AFP	0.020%
Road accident	0.309%

Mine accident	0.010%
Other	47.113%
Causes of U5MR (Nationally), Sources: adapted from Black RE et al., LaSources: adapted from Black RE et al., Lancet 2003 (under five) Pelletier DL et al. , AJPH 1993 (nutrition) WHO/CAH (neonatal).	
Diarrhea	24%
ARI	24%
Prematurity	11%
Asphyxia	8%
Neonatal infection	9%
Neonatal Tetanus	2%
Measles	1%
AIDS	1%
Malaria	1%
Congenital malformations	2%
Other neonatal causes	2%
Other	15%

B.1.c. Support structure:

The Organizational chart:

I, Sivan Oun, have been working with the project as the project manager and I have an assistant director to help me when I am away from the project. I have 9 health field staff (HFS), one male behavior change supervisor, and three male behavior change promoters. Each HFS has the responsibility to train and mentor two Care Group Coordinators, in order to reach out to the Care Groups (CG's). Each CG has 8 to 12 Women's Health Educators (WHE's). Among the 8 to 12 WHE's, two people are selected to be a leader and a secretary to run the CG by facilitating the monthly meetings, recording births, deaths, causes of death, numbers of pregnant women, and discussing any health issue in the CG. During the CG meeting they review the health message, discuss problems and make plans together. For every 15 households (on average), there is one WHE responsible to provide health education and support when they need help.

Based in Phnom Penh, Geof Bowman, the Health Advisor, and Tim Amstutz, the Country Director, both provide technical and advisory support.

Organizational Chart:

C. THOUGHT PROCESS

C.1. Problem definition:

In 30 years of Civil War, which included genocide, the public health infrastructure of Cambodia was devastated. Everything was almost destroyed and Cambodia became a poor country. As a result, people now face the burden of disease, a lack of community, limited resources, unproductive and poor quality health care and education, robbery, physical handicaps from landmines, and high illiteracy rate. There are challenges to health service delivery in Cambodia, especially for people who live in remote rural areas. As a result of a lack of human resources, the quality of health care services is poor. The low instance of people seeking health care results from a lack of basic health knowledge related to preventable diseases, especially pneumonia, and poor decision making for choosing health care services. Although recently there is some improvement in health care services, there is still a health problem in the country, and childhood pneumonia remains a major killer of children under five years of age (see table 1).

C.2. History and contributing factors:

As the result of years in civil war, including genocide mentioned above, over one third of Cambodia's population still lives below the poverty line with infant and under five mortality rates (U5MR) ranking among the highest in the world, despite significant progress over the several past decades in economic and social development.

Further contributing factors causing low health status of the community:

The population lacks education and productive skills, particularly in the poverty-ridden countryside, which suffers from an almost total lack of basic infrastructure, resulting from years of civil war and genocide. The illiteracy rate is high, especially among women living in the most remote areas where there is a lack of access to education and health information. This results in mothers not knowing how to properly take care of their children. Some mothers also have more children than their resources can support, which leads to malnutrition and makes the children vulnerable to disease.

Cambodia suffers from a lack of human resources and skilled health staff. Many also have low motivation for work, resulting from low and irregular salary. Besides poor quality health care services, the health center is far away from where many people live, so mothers do not go. The burden of transportation costs on those with very low income and shortages of food is also a barrier.

People do not trust the health center staff, because they charge too much. They also do not trust the health centers because there is a shortage of available staff and drugs. Recurring disease among youth can be a cause of a child's death, especially childhood pneumonia that needs proper treatment by antibiotics. Utilization of the health facilities remains low in many parts of Cambodia and children are treated at home, through informal sectors such as village injectionists, health practitioners, unlicensed pharmacy or traditional healers. Many children who live in the most remote villages, where there is little access to trained health providers or a health center, are less likely to receive proper antibiotic treatment for pneumonia. Among sick children, the effect of the disease is compounded by malnutrition, so they are likely to be sick again as their bodies and immune systems are not strong enough to fight against a new invasion of bacteria and virus. This means that sickness reoccurs more often.

According to the great needs in Cambodia, two administrative districts (Ponhea Kriek and Dambai) in Kampong Cham Province were chosen as the project site based on poor health status and its relatively rural, marginalized population. The district's weak health infrastructure underscored the need for teaching the population to prevent illness and simultaneously presented itself as an opportunity for desperately needed capacity building, especially at the community level.

World Relief Cambodia "Light for Life" CSP has been working in 5 communes in Ponhea Kriek district from 1998 to 2002. Then, from October 2002 to September 2007, the project was funded to reach all villages in the two districts of Ponhea Kriek and Dumbai. ARI training on recognizing the danger signs/symptoms of pneumonia (difficult/fast breathing or nostril flaring or drawing in of the chest, fever, and cough) which should prompt one to seek treatment immediately from a trained health provider has been provided to the Care Groups. As a result, there has been a decrease in the mortality and morbidity of children under five (Project C-HIS).

Table 2: Records for number of live births per quarter in the Original Area with 5 communes of the Ponhea Kriek district, which has both intervention and control area in it:

Quarter	Birth (Oct 2000-Sept 2001)	Birth (Oct 2001-Sept 2002)	Birth (Oct 2002-Sept 2003)	Birth (Oct 2003-Sept 2004)	Birth (Oct 2004-Sept 2005)	Birth (Oct 2005-Sept 2006)	Birth (Oct 2006-Sept 2007)
1 Q	473	391	374	402	451	400	425
2 Q	503	457	386	404	394	343	418
3 Q	399	352	345	325	371	355	321
4 Q	337	270	296	350	310	348	224-sep
Total birth by year	**1712**	**1470**	**1401**	**1481**	**1526**	**1446**	**1388**
# child pneumonia death	**17**	**14**	**13**	**12**	**11**	**9**	**4**
Pneumonia child death per 1000 live births	**9.929**	**9.523**	**9.279**	**8.102**	**7.208**	**6.224**	**2.881**

Drugs available:

Since there is a high demand for medicine from the community in response to many household illnesses, especially child pneumonia, medicines are available in almost every village. It was found that mothers seek health care services in both the private or informal sector and public sector for their sick children, particularly whichever one is always available and closer to their homes. Most often it is a shop vender selling many things, including drugs. Mothers have commonly used drugs and antibiotics at home incompletely and incorrectly (especially dosage) to treat diseases. They stop using it early which increases resistance to the drug and makes treatment harder in the future. The preliminary survey shows that antibiotics are always available and are used incorrectly (see annex 6)

Policy:

This problem is due to the poor quality of the health information system and the lack of policies that support rural needs. There is a lack of national policies to support identification and treatment of pneumonia by community health workers and to authorize the use of appropriate antibiotics in the community. Another problem is the weak link between community health workers and health facilities. Lack of supervision structures, health information systems, referral mechanisms and drug supply chains weaken the relationship between the health system and community health workers.

Effective community treatment of pneumonia requires knowledge of the community and adequate training, support, and supervision of community health workers. Additionally, close links with functional technical support from outsiders, especially health centers that have skilled professional staff and adequate drug supplies, would increase effectiveness of treatment.

Due to the problems mentioned above and the lack of support from the public health sector with no policies to support this program, the MOH does not approve of training community health workers and drug sellers to provide antibiotic treatment. The best way to respond to this situation is though trainings which would provide knowledge of pneumonia diagnosis and the advantages and disadvantages of antibiotic dosage. This would empower the community to have enough knowledge about pneumonia so that they could seek health care immediately when needed. Therefore, research on this issue was carried out in the practicum study here.

First, training on knowledge of pneumonia diagnosis and antibiotic dosage with advantages and disadvantages is very crucial to alert and empower households to make the right decision for their children's health. Then, community health workers must be strengthened and linked with the existing health center in the area.

C.3. Theory of change:

It is known that mothers seek health care services in both the private or informal sector and public sector for their sick children, particularly whichever one is always available and closer to their homes. In the project area, the closest and most available option is usually a shop vender selling many things, including drugs.

Pneumonia is a dangerous illness that needs quick and correct treatment, but the women in the project area do not know how to recognize pneumonia and diagnose it correctly. When a child is sick, a mother goes to the drug vender to buy medicine because the she has already planned and decided to get what she wants. Through

existing community Care Group systems in Ponhea Kriek and Dumbai Districts, training on the signs and symptoms of pneumonia and correct treatment of child pneumonia through antibiotics will be provided to the CGs in the intervention area (Cheynikum HC catchment area). The volunteers will teach the mothers how to diagnosis pneumonia and how to use antibiotics correctly to treat pneumonia in children. The mothers with young children will gain this knowledge and use it to become better caregivers by seeking proper treatment for their children. Through training given by the CGs, the mothers' knowledge will be improved and the quality of treatment of childhood pneumonia will be improved, which will contribute to the decline of the U5MR in the project area.

C.4. Research question:

The concern is that mothers already practice inappropriate antibiotic treatment at home, which leads to antibiotic resistance and health concerns. Crucial interventions will be to empower households with knowledge to make informed choices about antibiotics, and to encourage families to seek care from trained community health providers for the management of children with pneumonia, especially treatment health center and hospital.

The questions are:

1. How effective is the training of mothers of young children about the proper diagnosis and treatment of childhood pneumonia using the two antibiotics alternatives (Bactrim and Amoxicillin) in empowering mothers and reducing the number of under-five deaths from pneumonia per 1000 live births?
2. Can the mothers of young children who have received training describe how to diagnose and give the correct dosage of the two antibiotics (Amoxicillin and Bactrimoxazole) to treat childhood pneumonia?
3. How has the number of under-five deaths from pneumonia per 1000 live births changed since educating mothers about the antibiotic treatment of childhood pneumonia, if at all?

D. METHODOLOGICAL APPROACH

D.1. Description and discussion of research instruments:

Through the project's CG system, the research has been carried out in the project area. Among the 16 health centers, two were chosen for my research

implementation (Cheynikum HC for IA and Chipaing HC for CA) on childhood pneumonia, with a focus on knowledge of diagnosis of pneumonia and treatment (See map in annex 1). To assess the effectiveness of this study, the intervention in the two areas were monitored and compared to evaluate the impact of the intervention. Both these areas are located in the Ponhea Kriek district. The Cheynikum HC catchment area for the intervention area is in the Western part of the district and has eight villages (total population=6,146) and Chipaing HC catchment area for the CA is in the Eastern part of the district and has ten villages (total population=12,993).

Cheynikum HC is in the Western part of Ponhea Kriek and is located a little away from the main road and market. The land is flat, so there are many rice paddies. Chipaing HC is in the Eastern part of Ponhea Kriek with some rice paddies and other farms for beans, potatoes, cashews, and rubber plantations because of rolling, hilly land. Some villages of Chipaing HC are located along the main road and have a market, and some are located along the Vietnam border. These two areas have the same access to schools and HCs through dirt TRIP roads (the NGO works on building dirt roads in rural villages and gets people involved, "paying" for their labor with rice and salt donated by World Food Program).

The research was carried out in a four month period from January 2007 to April 2007. Baseline and final surveys were conducted, each time 100 women with children under five years were randomly selected in each area (the intervention=IA and the control areas=CA) to be interviewed.

D.2. Implementation:

As most of the volunteers cannot read or write, the EIC (Education, Information, Communication) materials that had already been developed used pictures. They were provided to the volunteers as job aids to use for teaching mothers during the home visit (See Annex 2). Messages are illustrated both with picture and words.

In January 2007, two baseline surveys were done at the same time in both areas. In February 2007, 83 volunteers were trained and continued to do home visits in Cheynikum HC. In the CA, volunteers did teach the key health messages of ARI for childhood pneumonia, but didn't teach lessons on antibiotics.

These are the key health messages regarding the signs and symptoms of child pneumonia that the CG volunteers in the intervention area taught mothers:

1. Signs/symptoms of child pneumonia are high fever, cough, difficult/fast breathing or drawing in of the chest. These signs/symptoms indicate a need for antibiotic treatment which is different from the common cold that does not need antibiotics at all.

2. When a child has these signs/symptoms of pneumonia, mothers should seek health care service immediately within 24 hours or provide correct treatment as mentioned below:

-Bactrim or Cotrimoxazole, two times a day and at least 5 days

Age of children	480mg	960mg
1month - <2months	¼	1/8
2months-<12monts	½	¼
12months-<5years	1	½

-Amoxicillin should be given three times a day for at least 5 days

Age of children	250mg	500mg
1month-<2months	¼	No
2months-<12monts	½	¼
12months-<5years	1	½

Description of the two antibiotics above:

Bactrim has been found more effective and is absorbed well through the digestive system. Amoxicillin is well known and is always available in the community. It is cheaper than Bactrim. Both antibiotics were selected as choices for alternative treatment.

Practicum schedule (see annex 5)

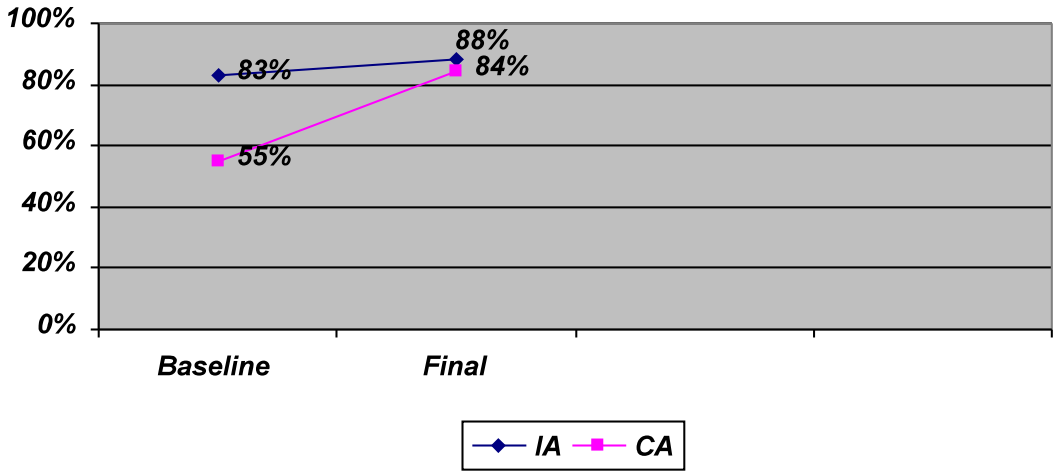
E. RESULTS/FINDINGS:

In the final survey, the percentage of mothers who knew their volunteer was 100% in both areas compared to the baseline survey result of 97% IA and 74% CA. In this survey, it was noted that mothers in the control area who knew their volunteer increased because the control area is in the Light for Life project area, which has Care Groups and volunteers to do home visits for the project intervention. (See annex 3 and 4 for questionnaire and results from the survey)

In this survey, 100 women with children under five years were randomly selected in each area (the intervention=IA and the control areas=CA) to be interviewed (See annex 7). The finding shows that the age range of mothers is 19 to 44 in the IA and 19 to 46 in the CA, and the mean age of the mothers is 27.68 years in the IA and 27.73 years in the CA. Fewer mothers have two children under five years N=4, 4% in the IA and N=14, 14% in the CA compared to the number of mothers who have one child 96% in the IA and 86% in the CA. Comparison of the two areas shows that in the IA there are fewer mothers with two children under five than in the CA. This data suggests that more mothers might use birth control in the IA than in the CA. Findings on birth spacing range are 18 months to 58 months in the IA, and 12 months to 50 months in the CA. Although the Birth Spacing training had been provided to the Care Groups in the original area including the two areas (IA & CA) in 1998, knowledge and behavior continue in the IA because the finding shows 4% of mothers have two children under five, while 14% of mothers have two children under five in the CA, possibly related to the perception that more children will generate more income for the family.

The finding of the surveys show that mothers who knew at least two warning signs and symptoms of childhood pneumonia increased in both areas: from 83% to 88% in the IA and from 55% to 84% in the CA, because the training on signs/symptoms and referral is already given by the Care Groups. It is good to see mothers' knowledge continue to increase in both areas. The graph below shows that mothers' knowledge in the control area increased more than mothers' knowledge in the intervention area. It is found that while the knowledge was already high, it increased by 5% in the IA from the baseline 83% to final 88%. In the CA, knowledge increased more because the baseline was lower than the IA (See Graphic 1 below).

Graphic 1: Percentage of mothers who know at least two warning signs and symptoms of childhood pneumonia. Comparison of baseline results and results after 4 months intervention.



In terms of how they should respond if their child has signs/symptoms of pneumonia, most mothers answered that they should take their sick child to the health center (90%) in both areas. It is good to see that they know where they can get quality health care for their sick children. They also answered that they should seek treatment immediately (within 24 hours) when they saw that their child had warning signs and symptoms of pneumonia, such as difficult or fast breathing, chest indrawing and nostril flaring followed by cough and high fever. The data shows a slight drop in the intervention area (baseline=95% and final=93%) but an increase from 72% to 95% in the control area. These messages of warning signs and referral are part of the general project intervention in all areas, which is no doubt why these women knew these symptoms well in both areas.

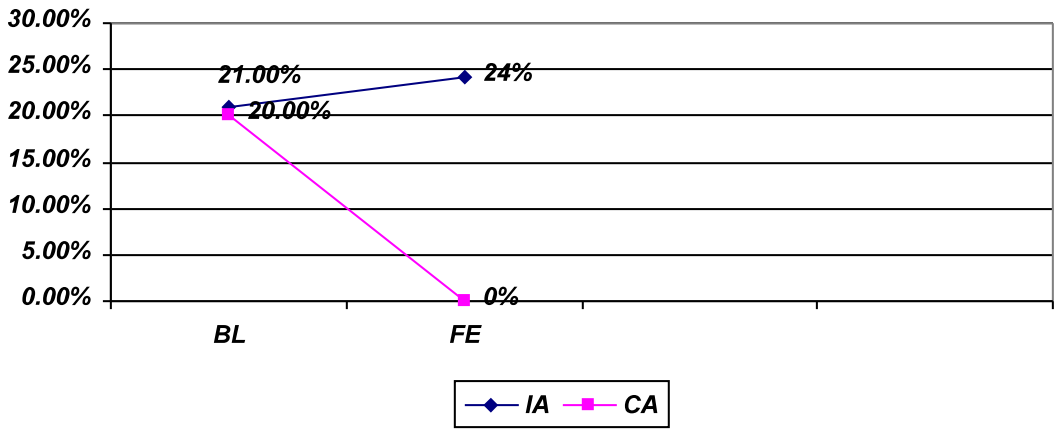
Practice and behavior:

Regarding the practice and behavior of mothers, the survey question asked whether the mother's child had been sick with pneumonia within the 14 days prior to the survey date. Mothers answering that their child had pneumonia (difficult or fast breathing, chest indrawing and nostril flaring following with cough and high fever) was 37% in the IA and 23% in the CA.

Among all the children who were sick, 37 mothers in the IA and 23 mothers CA reported that their child received treatment. Among these mothers, 33=89.2% in the IA and 16=69.6% in the CA said that they used antibiotics. Out of the 33 mothers in the IA area that reported using antibiotics, only 8 (24.2%) used them correctly. In the CA, of the 16 mother's who used antibiotics, none knew their correct use. However, this shows a slight improvement compared to results from the baseline study in the IA (21%). The number of mothers who used antibiotics is small in the Control Area so the confidence interval is large (N=19 at the baseline and N=33 at the final for IA, and N=5 at the baseline and N=16 at the final for CA) (See survey questionnaire and its data in annex 3 and 4).

This question is only for the mothers with children under five years who were sick with pneumonia in the previous 2weeks before the survey, to see how much they put into practice the knowledge of antibiotic they have learned.

Graphic 2: In practice, mothers correctly using antibiotic for childhood pneumonia (mg/tablet, how much by age, time/day and duration)



For the health care service fee, mothers reported that the health center and the local hospital are cheap (up to $2.25) in both areas. The fee at the clinic and village injectionist is high (up to $35), therefore many mothers use the health center the most often. In practice, mothers who have sick children reported that they sought treatment immediately within 24 hours when they saw warning signs of pneumonia; BL 25=100% and FE 32=86.5% in the IA; BL 19=95% and FE 21=91.3% in the CA.

Graphic 9 (about knowledge of the two antibiotics) and graphic 2 (about practice of antibiotic) show that mothers' correct use of antibiotics for children with pneumonia is higher in the IA than in the CA.

Mothers answered that they should seek treatment immediately within 24 hours when they saw that her child had the warning signs and symptoms of pneumonia in the IA (baseline=95% and final=93%) and this answer increased from 72% to 95% in the control area. These show that some mothers knew what they should do but instead they were reluctant, which shows that they are not yet strongly committed to the child's health.

Knowledge of Bactrim and Amoxicillin

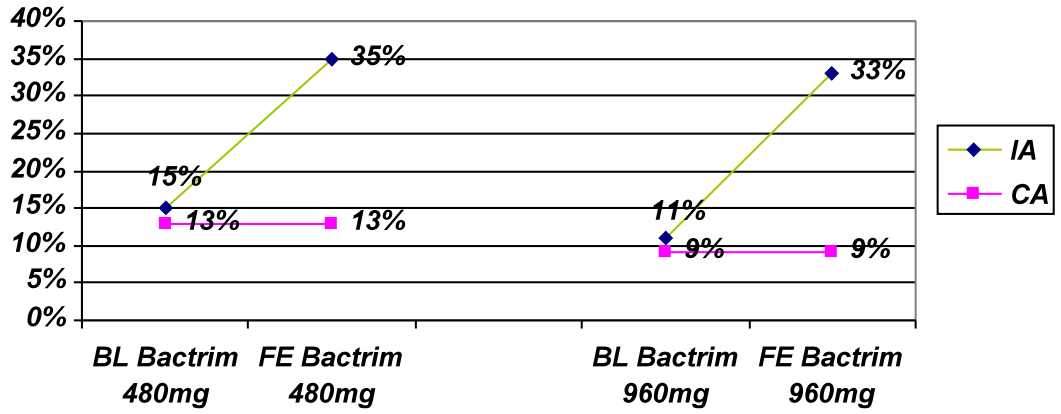
Note: The following questions (#12-13 in the questionnaire) asked about every point and detail related to the use of the two types of antibiotics with different tablets. Mothers could not describe the whole series of dosage with just one question so it was very important to ask them step by step about their thinking process (mothers are caretakers but not medical professionals).

Bactrim:

In the intervention area, the survey findings show that mothers knew about the Bactrim tablet. Knowledge of 480mg is 35% and 960mg is 33%, showing an increase when compared to the baseline which was 480mg 15% and 960mg 11%.

In the control area, knowledge about both levels of Bactrim did not increase during the period of study (see graphic 3 below).

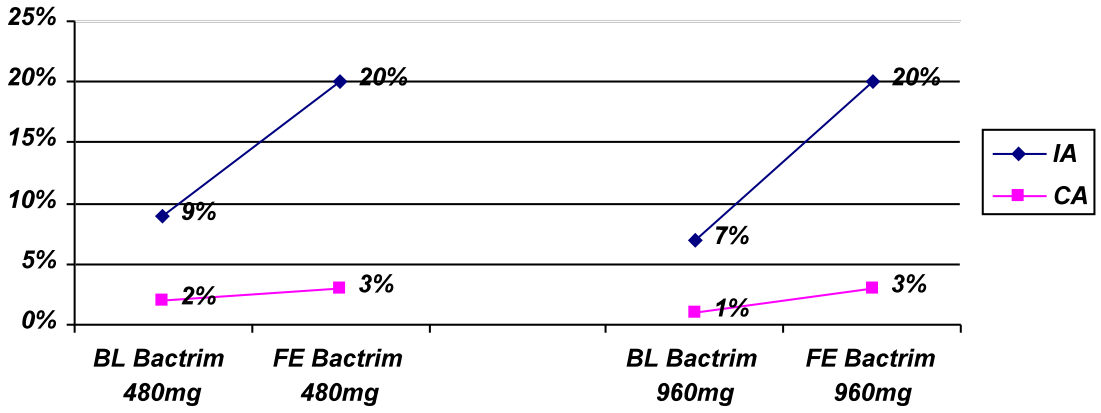
Graphic 3: Mothers answered that they knew Bactrim tablet with 480mg and 960mg



In the survey, mothers who knew how to use Bactrim 480mg completely correctly (mg/tablet, how much by age, time/day and duration) increased from 9% at the baseline to 20% at the final survey in the intervention area. It also increased from 2% at the baseline to 3% at the final survey in the control area.

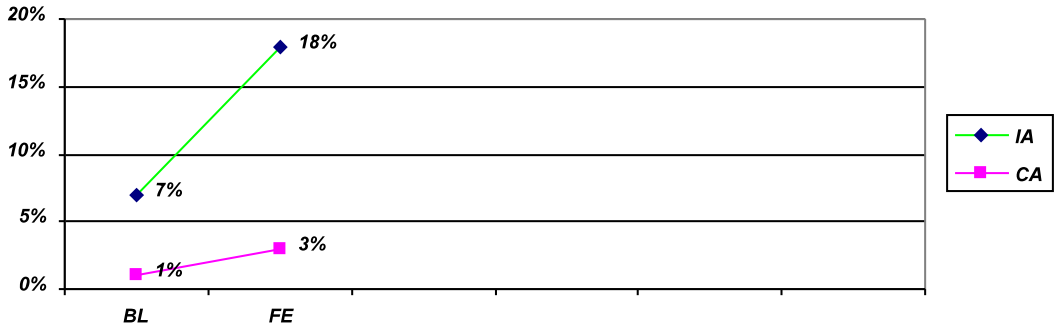
In the survey, mothers who knew to use Bactrim 960mg completely correctly (mg/tablet, how much by age, time/day and duration) increased from 7% at the baseline to 20% at the final survey in the intervention area. It also increased from 1% at the baseline to 3% at the final survey in the control area. (see graph 4)

Graphic 4: Mothers knowledge of using Bactrim 480mg completely correctly (mg/tablet, how much by age, time/day and duration) and their knowledge of using Bactrim 960mg completely correctly (mg/tablet, how much by age, time/day and duration).



Overall, for Bactrim (both 480mg and 960mg), mothers who knew to use both completely correctly (mg/tablet, how much by age, time/day and duration) increased from 7% at the baseline to 18% at the final survey in the intervention area (see graphic 5). It also increased from 1% at the baseline to 3% at the final survey in the control area, which shows that knowledge of mothers is increasing in both areas because of Care Groups. Mothers have been trained before, but in the intervention area where these messages were reinforced even more, knowledge of mothers increased significantly from the baseline of 7% to the final of 18% which higher than the CA (see graphic 5).

Graphic 5: Mothers knowledge of using both Bactrim 480mg and 960mg completely correctly (mg/tablet, how much by age, time/day and duration)



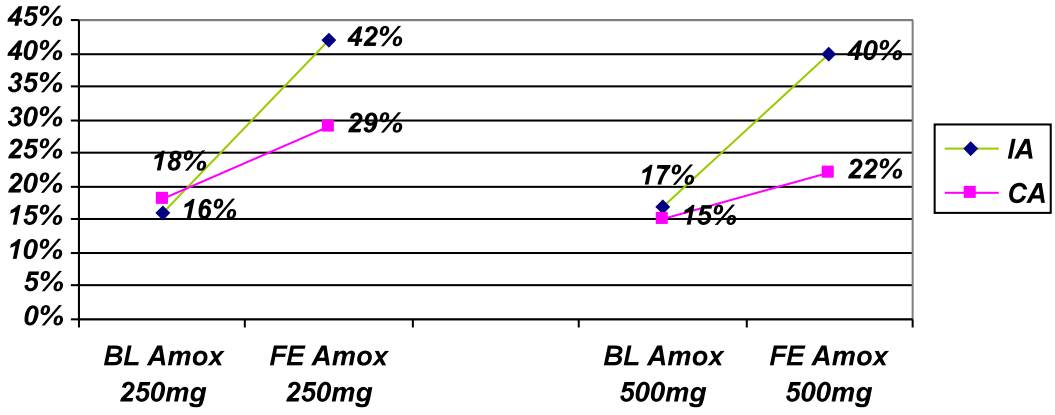
Amoxicillin:

Note: Again, the survey questions (#12-13) asked about every point and detail related to the use of the two types of antibiotics with different tablets. Mothers could not describe the whole series of dosage with just one question so it was very important to ask them step by step about their thinking process (mothers are caretakers but not medical professionals).

In the intervention area, the survey findings show that 42% of mothers knew the 250 mg Amoxicillin tablet and 40% knew the 500mg tablet, compared to 16% (250mg) and 17% (500mg) at baseline (an increase from 16% to 42% and from 17% to 40% in the intervention area).

In the control area, mothers who answered that they knew Amoxicillin 250mg was 29% compared to 18% at baseline, an 11% difference. For Amoxicillin 500mg, the knowledge of mothers was 22% and the baseline was 15%, a 7% increase.

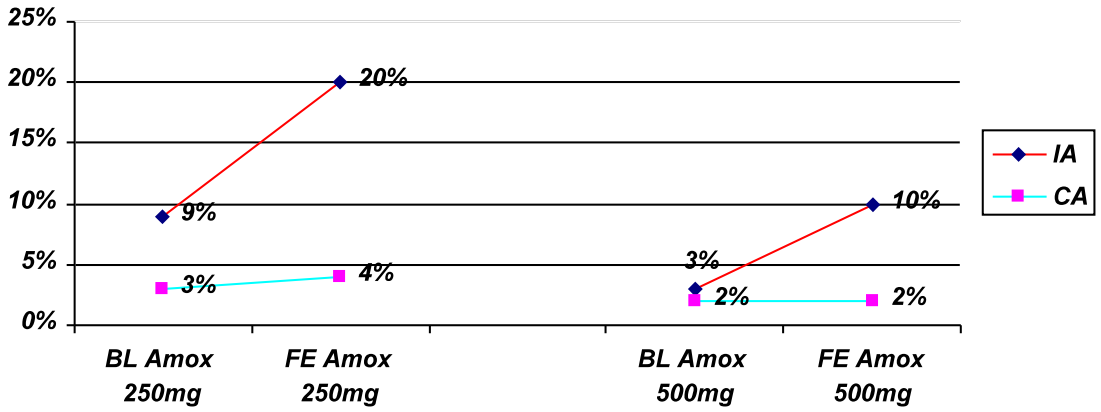
Graphic 6: Mothers' knowledge of Amoxicillin tablets with 250mg and 500mg



In the survey, mothers who knew how to use Amoxicillin 250mg completely correctly (mg/tablet, how much by age, time/day and duration) increased from 9% at the baseline to 20% at the final survey in the IA. It was 3% at the baseline and 4% at the final survey in the CA.

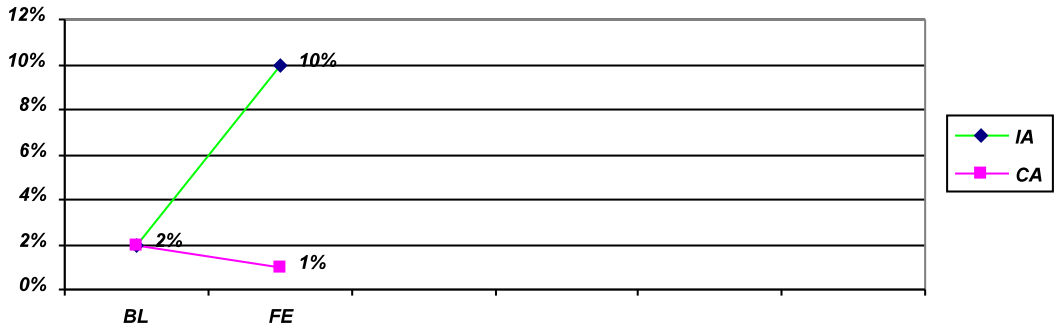
In the survey, mothers who knew to use Amoxicillin 500mg completely correctly (mg/tablet, how much by age, time/day and duration) increased from 3% at the baseline and 10% at the final survey in the IA. It remained the same (2% at the baseline to 2% at the final survey) in the control area.

Graphic 7: Mothers knew of using Amoxicillin 250mg completely correctly (mg/tablet, how much by age, time/day and duration) and they knew of using Amoxicillin 500mg completely correctly (mg/tablet, how much by age, time/day and duration).



Overall, for Amoxicillin both 250mg and 500mg, mothers who knew to use both completely correctly (mg/tablet, how much by age, time/day and duration) increased from 2% at the baseline to 10% at the final survey in the intervention area (see graphic 8). In the CA no increase was seen in the correct use of this antibiotic.

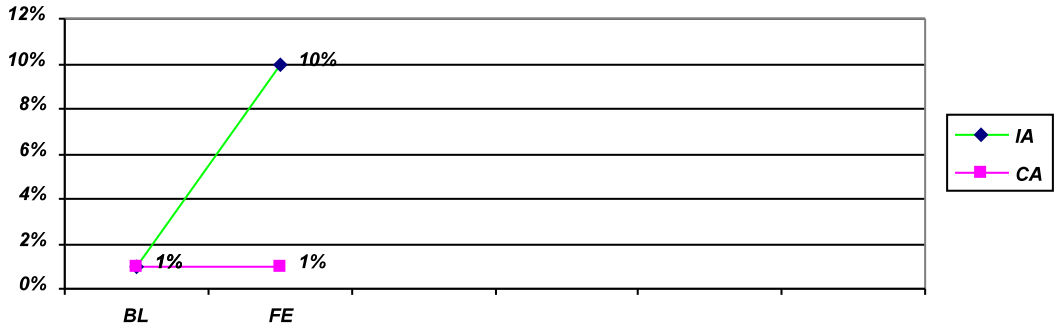
Graphic 8: Mothers' knowledge of how to correctly use <u>both</u> Amoxicillin 250mg and 500mg (mg/tablet, how much by age, time/day and duration)



<u>Knowledge of how to use both Bactrim and Amoxicillin</u>:

In the intervention area, mothers who knew how to use Bactrim (480mg and 960mg) and Amoxicillin (250mg and 500mg) completely correctly (mg/tablet, how much by age, time/day and duration) was 1% at the baseline survey and increased to 10% at the final survey compared to the control area, which remained the same at 1% for both surveys (the baseline and the final).

Graphic 9: The knowledge of mothers about both tablets for both Bactrim and Amoxicillin: All mothers (with and without a child sick with pneumonia) were asked about the two antibiotics: the use/dose of Bactrim 480mg and 960mg + Amoxicillin 250mg and 500mg (mg/tablet, how much by age, time/day and duration).



F. DISCUSSION AND ANALYSIS

F.1. Responses to the Research Questions:

Research question 1.

How effective is the training of mothers of young children about the proper diagnosis and treatment of childhood pneumonia using the two antibiotics alternatives (Bactrim and Amoxicillin) in empowering mothers and reducing the number of under-five deaths from pneumonia per 1000 live births?

Due to drug availability in the community and MOH's inability to control the drug sellers, women go for health care where it is feasible and affordable for them. Empowering women who are caretakers to improve their knowledge about drugs is very important. Women usually have many things to do at home already, so when her child gets sick, going to the health center is unexpected and inconvenient. It takes more resources and trust to go to the HC than the village drug seller, so she needs information which can help her to make the right decision. Women do not have confidence to express their feelings with the health center staff even if they are not happy. Most women are illiterate; they learn slowly and they will not remember by hearing something one time. Training the women on any primary health care issue can build their confidence and empower them to be better caretakers who seek appropriate care on time. By simplifying the regimens (type and dosage) of two alternative antibiotics Bactrim and Amoxicillin, mothers could be able to remember it.

The research implementation was carried out in the Cheynikum health center catchment area for IA, with no training on antibiotics given in the CA, Chipaing health center catchment area. Women were engaged and educated through by the project volunteers about child pneumonia: signs/symptoms of pneumonia when it is an emergency and requires immediate referral and prompt treatment immediately with one of two alternative antibiotics. The purpose of the training is to help women have the power of knowledge to recognize pneumonia, when and where to go and how to give a completely correct dose for pneumonia. This provides her more control of child pneumonia with informed choices. The findings show that mothers knowledge of signs/symptoms of pneumonia when it is an emergency requiring immediate referral and and immediate treatment increased from the baseline 83% to final 88% in the IA, and in the CA from 55% to 84%, because volunteers had been trained before and these messages continued to spread (see graphic 1 above). Mother began to put into practice what they learned, and the results show an increase from

21% to 24% in the IA but a decrease in the CA from the baseline of 20% to 0% (see graphic 2).

The community monthly stats show that there were many children who had pneumonia every month in both areas and no children died in January, February, March, April, May, or June. This shows that mothers sought health care and proper treatment, resulting in no deaths in children under five years of age from pneumonia. The final survey shows that 37% (IA) and 23% (CA) of children were sick with pneumonia, however, among those who were sick there were no deaths in the last 8 months (January to August 2007 in the project HIS) because 83.8% sought health care at the health center, 8.1% sought health care from the hospital, and another small percentage sought health care from private providers. This shows that women were empowered to choose good health service for their children rather than keeping them home where they might die.

Research question 2.

Can the mothers of young children who have received training describe how to diagnose and give the correct dosage of the two antibiotics (Amoxicillin and Bactrimoxazole) to treat childhood pneumonia?

In the IA, the final survey shows that 88% of mothers with children under five years knew how to diagnosis pneumonia with signs/symptoms (cough, high fever, difficult/fast breathing), which increased from 83% at the baseline to 88% at the final. The baseline result is high already which shows that mothers already had knowledge about the warning signs of childhood pneumonia (when knowledge is high, the increase is not as pronounced). Mothers who have children sick with pneumonia reported that they used antibiotics, 8=24.2% (IA), and used it correctly, compared to the baseline of 4=21% (IA).

In the intervention area, mothers who knew how to use Bactrim (480mg and 960mg) and Amoxicillin (250mg and 500mg) completely correctly (mg/tablet, how much by age, time/day and duration) to treat pneumonia was 1% at the baseline survey and increased to 10% at the final survey.

Research question 3.

How has the number of under-five deaths from pneumonia per 1000 live births changed since educating mothers about childhood pneumonia, if at all?

In the year 2007, the time period of implementation (January to April 2007), the number of children under five years who died from pneumonia in both health centers is zero (data collected from the Care Group monthly meetings), however, the results can not confirm that it is effective. The numbers shown below are for a long time period from the pneumonia training given by the project before. This question is about long term impact, and it is good to know how this training could contribute to reducing the under-five mortality rate beyond the period of the time implementation. This research is just supporting data because the time of implementation for the research (4 months) is too short to measure long term impact.

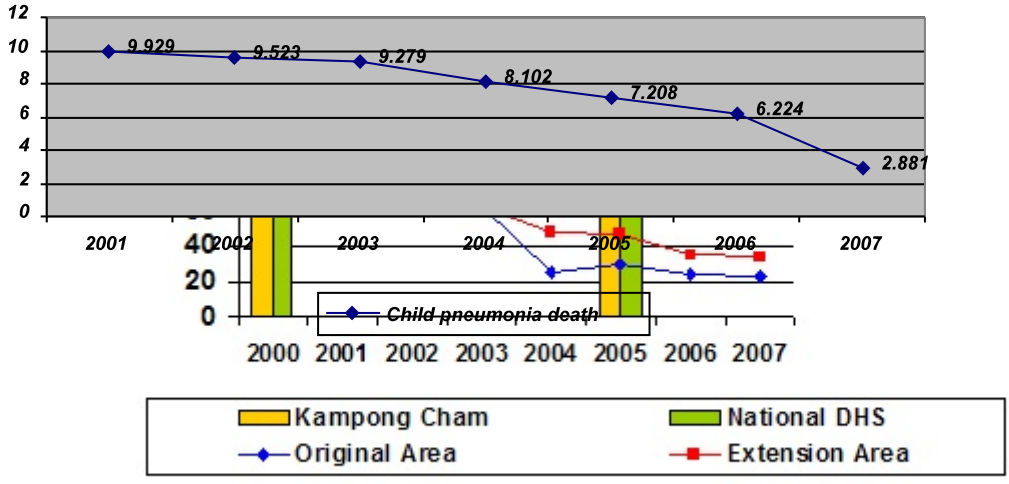
Table 3: Comparison of the number of child death from pneumonia reported by community care group volunteers and gathered by month in the two areas:

Month	# of pneumonia child death 2004		# of pneumonia child death 2005		# of pneumonia child death 2006		# of pneumonia child death 2007	
	IA	**CA**	**IA**	**CA**	**IA**	**CA**	**IA**	**CA**
January	1	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0	0
March	0	0	0	0	0	0	0	0
April	0	0	0	0	0	0	0	0
May	0	0	0	0	0	0	0	0
June	0	0	0	0	0	0	0	0
July	0	0	0	0	0	0	0	0
August	1	0	0	0	0	0	0	0
Septembe r	0	0	0	0	0	0	0	0
October	0	0	0	0	0	0	0	0
November	0	0	0	0	1	0	0	0
December	0	0	0	0	0	0		
Total	**2**	**0**	**0**	**0**	**1**	**0**	**0**	**0**
In the final survey shows that 37% (IA) and 23% (CA) of children were sick with pneumonia. Among those who were sick with pneumonia, none died in the last 11 months in 2007.								

Table 4: Records of number of live birth per quarter in the Original Area with 5 communes of the Ponhea Kriek district, which has both intervention and control area in it:

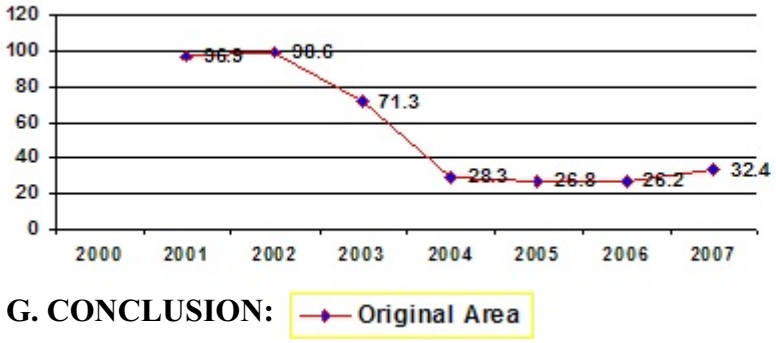
Quarter	Birth (Oct 2000-Sept 2001)	Birth (Oct 2001-Sept 2002)	Birth (Oct 2002-Sept 2003)	Birth (Oct 2003-Sept 2004)	Birth (Oct 2004-Sept 2005)	Birth (Oct 2005-Sept 2006)	Birth (Oct 2006-Sept 2007)
1 Q	473	391	374	402	451	400	425
2 Q	503	457	386	404	394	343	418
3 Q	399	352	345	325	371	355	321
4 Q	337	270	296	350	310	348	224-sep
Total birth by year	**1712**	**1470**	**1401**	**1481**	**1526**	**1446**	**1388**
# child pneumonia death	**17**	**14**	**13**	**12**	**11**	**9**	**4**
Pneumonia child death per 1000 live at birth	**9.929**	**9.523**	**9.279**	**8.102**	**7.208**	**6.224**	**2.881**

Graphic 10: Number of reported deaths from pneumonia diseases by the project HIS in the Original Area with 5 communes (7 health centers including the Intervention Area and the Control Area) in the Ponhea Kriek district:



Graphic 11: Infant Mortality in World Relief Project Areas, Kampong Cham Province, and Cambodia Nationally

Graphic 12: Number of under-five deaths from pneumonia per 1000 live births by year:



G. CONCLUSION:

Based on the findings of the survey above:

Result #1. The findings show that the knowledge of mothers about the warning signs/symptoms of childhood pneumonia in both areas at the baseline was already high. This shows that they have learned about these messages and the message continues to spread to other neighbors and the next generation.

The baseline was 83% IA and 55% CA and increased to 88% IA and to 84% CA in the final. The CA increase significantly because the baseline was low and there were more mothers who needed to learn. The graph about the intervention area shows the knowledge of mothers kept increasing, although the baseline was high. The knowledge of mothers in both areas continued to increase, which shows that mothers are able to learn and remember the signs/symptoms quite well, and keep spreading it in the community.

Result # 2. In the practice of using antibiotics for pneumonia by mothers who had children sick with pneumonia and who reported that they used antibiotics for pneumonia treatment and used it correctly (mg/tablet, how much by age, time/day and duration) increased from 4=21% to 8=24.2% IA and decreased from one mother at the baseline to zero at the final CA. It shows not much difference from the baseline, so it is hard to say whether the training really impacted the reduction of pneumonia, because the length of time was short and the numbers were so small.

Result # 3. The findings show that mothers who know how to correctly use the two types of Bactrim (480mg and 960mg) (mg/tablet, how much by age, time/day and duration) increased from 7% at the baseline to 18% IA at the final survey, and it also increased from 1% at the baseline to 3% CA at the final survey. Here there are different percentages between the baseline data and the final data in the intervention area, which shows that the training might be effective.

Result # 4. The mothers who know how to correctly use Amoxicillin both 250mg and 500mg (mg/tablet, how much by age, time/day and duration) increased from 2% at the baseline to 10% IA at the final survey, and it decreased from 2% at the baseline to 1% CA at the final survey. It shows that mothers in the intervention area learned more from the training, but there is no difference in the control area.

Result # 5. In the intervention area, the percentage of mothers who knew how to correctly use both Bactrim (480mg and 960mg) and Amoxicillin (250mg and 500mg) (mg/tablet, how much by age, time/day and duration) was 1% at the baseline survey and increased to 10% at the final survey. In the control area, the percentage remained the same for both surveys (1% at baseline and final). From the survey questionnaires and the data analysis used, the results show that there is improvement in the intervention area, but there is no difference in the control area.

The overall findings in this survey show that the training was effective, because there are differences between the two (intervention area and control area) results. A 10% IA difference from the baseline for the time period of 4 months shows that the training is effective.

Result # 6. From the evidence presented in the data gathered by the C-HIS, it is conclusive that the Childhood Survival Project is effective in the prevention of

death in children under five years. Raising awareness about childhood pneumonia, especially in the warning signs/symptoms and correct antibiotic treatment is effective. The impact is evidenced by the fact that there are no deaths from pneumonia in the months of 2007 (see table 3 above).

From the evidence shown in the results above, training mothers on antibiotic use is effective, however, it needs more intensive implementation that requires technical support, surveillance, supervision and evaluation of the volunteer health worker. Even more support is needed for the illiterate volunteers to deliver the messages to the mothers. The mothers seem to learn very slowly, because the dosage is related to the age of the children, which is very difficult for mothers to remember and even more difficult for illiterate mothers.

The mortality rate of children under the age of five has declined during the life of the project, undoubtedly impacted by integrated interventions of the project, mobilizing the community to raise awareness among mothers and child caretakers, and good cooperation with the health center staff. However, in only 4 months it is not possible to say that the intervention itself was effective, so another long term study should be conducted to gather more evidence. Because child pneumonia is still the greatest killer of young children in Cambodia, more long term studies should be taken into consideration.

The program, based in the community, uses trained female community health volunteers who are literate to detect and treat pneumonia. The program was supported by conducting mortality surveillance and cause-of-death determination using workers. The training should include information as well as practice of basic skills such as measuring the respiratory rate to classify the severity of respiratory infections, taking the temperature to see how high the fever is, counseling caretakers on how to administer drug regimens and the importance of taking the full course of antibiotics. The community women health workers should be regularly supported and supervised from functional health centers. A close linkage with the skilled professional staff and adequate drug supplies is crucial to maintain services and improve access to quality care for the most vulnerable people.

Due to the limitation of resources, it is recommended that future work in other project areas focus on broad pneumonia interventions, rather than only focusing on the antibiotic treatment. Immediately referring a sick child to the health center and fully following the prescription of the health center staff should continue to be taught to mothers alongside the broader intervention. Empowering mothers with enough information on childhood pneumonia to recognize when a child needs immediate and appropriate antibiotic treatment and to know about the quality of health care providers that they can trust should be taken into consideration. Improving the quality

of health care is essential to improving the trust of the community and responding to the needs of child health in remote rural areas.

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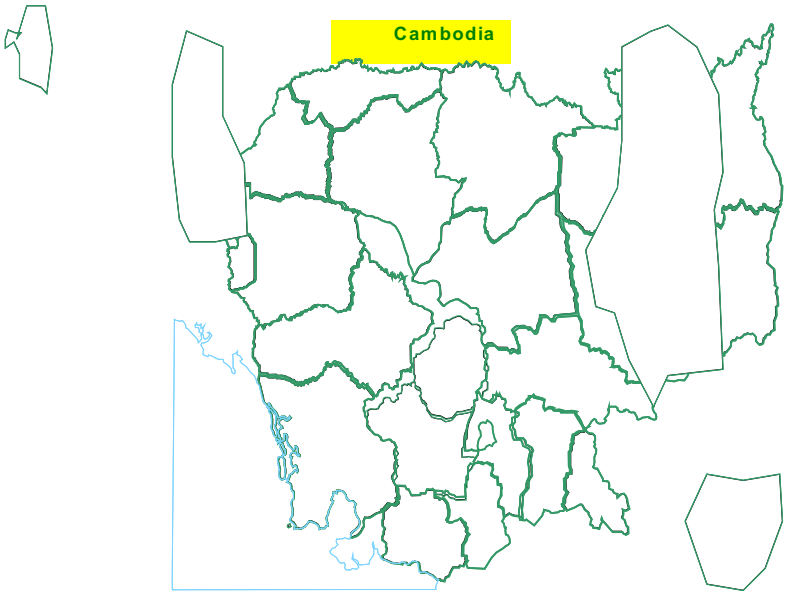
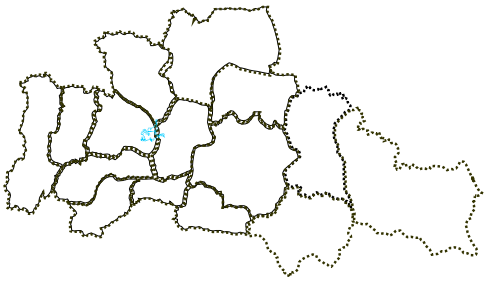
ANNEX 1: Map

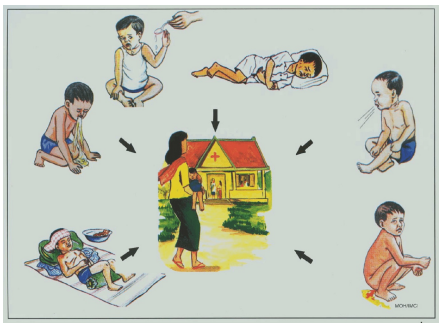


Kampong Cham Map



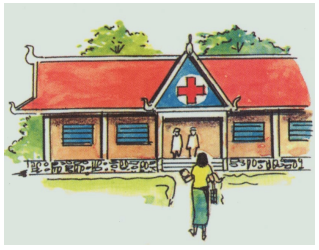
ANNEX 2: Job Aid

If you see a child has these danger signs below, refer he/she to the health center immediately within 24 hours



For pneumonia treatment, a child must be treated with antibiotic at least for 5 days

If a sick child has treated for 3 days, he/she does not recover yet, take a child to the health center again for checking

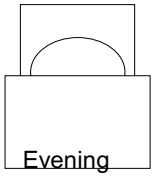


A child with pneumonia is treated by Cotrimoxazole/Bactrim, 2 times a day for 5days

1- <2 months	480 mg	960 mg

¼1/8

2 months- <12 months ½1/4 **12 months- <5 years** 1 1/2



Morning

Evening

A child with pneumonia is treated by Amoxicillin, 3 times a days for 5 days

Age of a child	250 mg	500 mg
1- <2 months	¼	
2- <12 months	½	1/4
12 months- < 5 years	1	1/2

Morning

Noon

Evening

Evening

Signs/symptoms of a child has a cold: - cough - running nose and stuffy nose - sneezing often - lightly fever	Signs/symptoms of a child has pneumonia: - cough - difficult/fast breathing, chest drawing and nostril flaring - asthmatic sound in the respiratory

ANNEX 3: Questionnaire

WORLD RELIEF CAMBODIA
Light for Life Child Survival Cost Extension Project
Ponhea Kriek-Dam Bai Operational Health District, Kampong Cham Province

Final Survey on Childhood Pneumonia done on 19th May 2007
survey with mothers with children under five years of age

Informed consent: Hello, my name is_____, and I am working with World Relief. We are conducting a survey and would appreciate your participation. I would like to ask you about the health of your youngest child under 5 years of age. The information you provide will be kept strictly confidential and will not be shown to other persons.

Participation in this survey is voluntary and you can choose not to answer all of the questions. However, we hope that you will participate in this survey since your views are important. At this time do you want to ask me anything about the survey?

Name of interviewer: Signature: _____Date:
(If respondent agrees to be interviewed continue the survey)

Village: Commune:
Health center:

Demographic Data

1. Name, and age of woman interviewed.
   Name: Age:
2. Name, age and sex of child (if any) unrder 5 years of age.
   If mother has two children under five years:

Older child: Name: date of birth age (in month): sex:

Youngest child: Name: date of birth age (in month): sex:
(Select the youngest child under two years to be interviewed)

MOTHER'S KNOWLEDGE

3. Do you know your Care Group volunteer?
   a. Yes
   b. No

4a. What are the warning signs and symptoms of childhood pneumonia? (Check any responses given by the mother)

a. Cough
b. Running nose
c. Stuffy nose
d. Sneezing
e. Fever
f. Diarrhea
g. Vomiting
h. Difficult or fast breathing
i. Chest indrawing and nostril flaring
j. Convulsion
k. High fever
l. Don't know

4b. Did the mother answer at least two signs correctly? (a, h or i, l)

a. Yes
b. No

5. What action should you be taken if (Name----------) child develops any of the warning signs/symptoms of pneumonia? (Check any of the responses given)

a. Go to a pharmacy
b. Go to the health center
c. Go to the hospital
d. Go to private clinic
e. Go to a village injectionist
f. Consult a project volunteer
g. Consult a relative
h. Nothing
i. Other

6.If your child has pneumonia, when should you seek treatment for him/her?

a. Immediately
b. Within 24 hours
c. Two days later
d. Three days later

PRACTICE AND BEHAVIOR

7. Did Name_____have any of the following symptoms during the past two weeks?

(Check any of the following questions given by the mother)?

a. Cough
b. Cold
c. Difficult of fast breathing
d. Chest indrawing and nostril flaring
e. Diarrhea
f. Blood in stool
g. Convulsion
h. High fever
i. Fever
j. None

(If the respondent answered e, d, or e, go to Q9. If not, go to Q13.)

Childhood pneumonia rate:

a. Yes
b. No

8. Did you seek any treatment for your child when it was sick during the past two weeks?
(this question is for child who had pneumonia only)

a. Yes
b. Nothing go to Q#13

9. What treatment did the child receive?

a. Medicine for fever and/or pain (such as Paracetamol)
b. Cough medicine
c. Antibiotics

If the answer to "c" is yes, go to Q11. If not, go to Q13.

10. What antibiotic and dosage did the child receive?

a. Time/day correct
b. Duration correct
c. Completely correct

11.a. Where did you go to obtain that treatment? (Check the appropriate box. Check more than one box if appropriate.)

a. Pharmacy

b. Health center
c. Hospital
d. Private clinic
e. I give prescription/treatment to my child
f. I did not go any where
g. Village injectionist

11.b. How much did you pay for all the expenses related to consultation and drugs?
a. Health care service fee:……..
b. Don't remember

11.c. When did you seek that treatment after your developed symptoms?
a. Immediately
b. Within 24 hours
c. Two days later
d. Three days later and more

KNOWLEDGE OF USAGE OF BACTRIM AND AMOXICILLIN
(For all the mothers with children under five years)

12. What are the dosage of Bactrim
A.How many type of Bactrim tablets with mg?
a. 480mg
b. 960mg
c. Don't know

B. How do you use Bactrim or Cotrim for pneumonia treatment for sick children?
* How much mg by age for Bactrim 480mg

Age of a child	Bactrim 480mg
1month - <2 months	
2months - < 12 months	
1 year - < 5 years	
Don't know	

* How much mg by age for Bactrim 960mg

Age of a child	Bactrim 960mg
1month - <2 months	
2months - < 12 months	
1 year - < 5 years	
Don't know	

C. How many time per day for Bactrim should give to a sick child?

a. 1 time
b. 2 times
c. 3 times
d. 4 times or more
e. Don't know

D. How many days at least the Bactrim should be given to a sick child?

a. At least 5 days
b. At least 7 days
c. At least 10 days
d. Less than 5 days
e. Don't know

13. What are the dosage of Amoxicillin?

a. How many types of Amoxicillin tablets with mg?

a. 125mg
b. 250mg
c. 500mg
d. Don't know

b. How do you use Amoxicillin for pneumonia treatment for sick children?

* How much mg by age for Amoxicillin 250mg

Age of a child	Amoxicillin 250mg
1month - <2 months	
2months - < 12 months	
1 year - < 5 years	
Don't know	

Age of a child	Amoxicillin 500mg
1month - <2 months	
2months - < 12 months	
1 year - < 5 years	
Don't know	

c. How many time per day for should Amoxicillin be given to a sick child?

a. 1 time
b. 2 times
c. 3 times

d. 4 times or more
e. Don't know

d. How many days at least the Amoxicillin should be given to a sick child?
a. At least 5 days
b. At least 7 days
c. At least 10 days
d. Less than 5 days
e. Don't know

THANK YOU

ANNEX 4: Data from Surveys

WORLD RELIEF CAMBODIA
Light for Life Child Survival Cost Extension Project
Ponhea Kriek-Dam Bai Operational Health District, Kampong Cham Province

Final Survey on Childhood Pneumonia done on 19th May 2007

I. Objectives of the Baseline Survey

The purpose of this baseline survey is for the research practicum to study and comparison to see how the effectiveness of the training the care takers on childhood pneumonia in symptoms and the treatment impact to the reduction of child mortality death.

Two health centers have been randomly selected for my research implementation; one health center areas (which are Chey Nikum health center for intervention are and Krek II health center for control area). This way could help with monitoring, comparison, and evaluation for the effectiveness and impact of the research. Then two areas have been randomly selected, Cheynikum health center is for the intervention area and Krek II health center is for the control area. These both areas are located in the Ponhea Kriek district, Cheynikum is in the Western part of the district and has eight villages (total population=6,146=100%) and Krek II is in the Eastern part of the district and has ten villages (total population=12,993=100%).

II. Selection of the Sample

100 of mothers with children under five years in each health center above were randomly selected to interview. This survey method is randomly selected by village according to the total population in each village compare to the total population in a whole health center, in order to have 100 people to be interviewed in each health center.

III. Method of Data Analysis

Data entry and processing was done by Sivan Oun with EPI Info 6.

IV. Survey Results

The following answers were given for the survey questions. The total number of this survey in each health center was 100. There is only one kind of the survey form was used in both areas, the knowledge and practice questionnaires were given to the mothers to measure their knowledge and practice of signs/symptoms and treatment practice for the childhood pneumonia.

Note:

In the Final Survey, there are 200 surveys (100 survey in the Intervention Area and 100 survey in the Control Area) and they are the same number as the Baseline Survey.

Demographic Data

2. Name and age of woman interviewed.

Response	Intervention Area		Control Area	
	Baseline (January 29th 2007) N=100	Final (May 19th 2007) N=100	Baseline N=100	Final N=100
Age Range	18 y – 44 y	19-44	18 y – 51 y	19-46
Age Mean	28.2 y	27.68	27.58 y	27.73

3. Name, age and sex of child (if any) unrder 5 years of age.

Response		Intervention Area				Control Area			
		Baseline N=24		Final N=4		Baseline N=22		Final N=14	
		N	%	N	%	N	%	N	%
The older child under 5 years	Male	9	37.5 %	1	25 %	13	59.1 %	4	27.4%
	Female	15	62.5 %	3	75 %	9	40.9 %	10	71.4%
	Age Range	24 ms – 60 ms		21-48 ms		24 ms – 60 ms		23 ms-58 ms	
	Mean	46.25 ms		37.25 ms		49.091 ms		39.143 ms	

Response	Intervention Area		Control Area	
	Baseline N=24	Final N= 4	Baseline N=22	Final N=14
Birth space range between two	18 months – 58 months	18 months – 58 months	12 months – 50 months	12 months – 50 months

children in the survey								
Mean		35.042 months		35.042 months		36.5 months		36.5 months

Responses		Intervention Area				Control Area			
		Baseline N=100		Final N=100		Baseline N=100		Final N=100	
		N	%	N	%	N	%	N	%
The youngest child under 5 years	Male	49	49%	46	46%	44	44%	54	54%
	Female	51	51%	54	54%	56	56%	46	46%
	Age Range	0 month – 60 months		0-50 months		0 month – 60 months		0-57 months	
	Mean	18.74 months		20.02 months		22.17 months		17.89 months	

MOTHER'S KNOWLEDGE

4. Do you know your Care Group volunteer?

Responses	Intervention Area N=100				Control Area N=100			
	Baseline		Final		Baseline		Final	
	N	%	N	%	N	%	N	%
Yes	97	97%	100	100%	74	74%	100	100%
No	3	3%	0	0	26	26%	0	0

4a. What are the warning signs and symptoms of childhood pneumonia? (Check any responses given by the mother)

Responses	Intervention Area N=100				Control Area N=100			
	Baseline		Final		Baseline		Final	
	N	%	N	%	N	%	N	%
a. Cough	82	82%	85	85%	55	55%	83	83%
b. Running nose	7	7%	8	8%	23	23%	2	2%
c. Stuffy nose	2	2%	2	2%	6	6%	5	5%
d. Sneezing	2	2%	1	1%	5	5%	0	0
e. Fever	4	4%	1	1%	15	15%	2	2%
f. Diarrhea	3	3%	1	1%	14	14%	2	2%
g. Vomiting	3	3%	0	0	4	4%	0	0
h. Difficult or fast breathing	80	80%	89	89%	56	56%	84	84%

i. Chest indrawing and nostril flaring	45	45%	87	87%	22	22%	73	73%
j. Convulsion	1	1%	0	0	2	2%	0	0
k. High fever	75	75%	82	82%	53	53%	83	83%
l. Don't know	10	10%	11	11%	19	19%	13	13%
m. Mother answer at least two signs correctly (a, h or i, l)	83	83%	88	88%	55	55%	84	84%

5. What action should you be taken if (Name----------) child develops any of the warning signs/symptoms of pneumonia? (Check any of the responses given)

Responses	Intervention Area N=100				Control Area N=100			
	Baseline		Final		Baseline		Final	
	N	%	N	%	N	%	N	%
a. Go to a pharmacy	2	2%	9	9%	15	15%	1	1%
b. Go to the health center	87	87%	90	90%	73	73%	90	90%
c. Go to the hospital	5	5%	13	13%	20	20%	7	7%
d. Go to private clinic	8	8%	10	10%	18	18%	12	12%
e. Go to a village injectionist	5	5%	3	3%	6	6%	1	1%
f. Consult a project volunteer	0	0%	1	1%	1	1%	0	0%

6. If your child has pneumonia, when should you seek treatment for him/her?

Responses	Intervention Area N=100				Control Area N=100			
	Baseline		Final		Baseline		Final	
	N	%	N	%	N	%	N	%
a. Immediately	88	88%	87	87%	56	56%	89	89%
b. Within 24 hours	7	7%	6	6%	16	16%	6	6%
c. Two days later	4	4%	6	6%	22	22%	4	4%
d. Three days later	1	1%	1	1%	6	6%	1	1%
e. a+b	95	95%	93	93%	72	72%	95	95%

PRACTICE AND BEHAVIOR

N=100

7. Did Name_____have any of the following symptoms during the past two weeks? (Check any of the following questions given by the mother)?

Responses	Intervention Area N=100				Control Area N=100			
	Baseline		Final		Baseline		Final	
	N	%	N	%	N	%	N	%
a. Cough	45	45%	49	49%	46	46%	33	33%
b. Cold	47	47%	32	32%	62	62%	35	35%
c. Difficult of fast breathing	22	22%	37	37%	20	20%	23	23%
d. Chest indrawing and nostril flaring	19	19%	36	36%	9	9%	21	21%
e. Diarrhea	16	16%	23	23%	29	29%	21	21%
f. Blood in stool	3	3%	1	1%	3	3%	0	0
g. Convulsion	1	1%	0	0	0	0%	0	0
h. High fever	25	25%	34	34%	20	20%	19	19%
i. Fever	27	27%	19	19%	31	31%	18	18%
j. None	30	30%	24	24%	26	26%	46	46%

(If the respondent answered e, d, or e, go to Q9. If not, go to Q13.)

Childhood pneumonia rate:

Responses	Intervention Area N=100				Control Area N=100			
	Baseline		Final		Baseline		Final	
	N	%	N	%	N	%	N	%
a. Yes, pneumonia	25	25%	37	37%	20	20%	23	23%
b. Other diseases	45	45%	39	39%	54	54%	31	31%
C. None	30	30%	24	24%	26	26%	46	46%

8. Did you seek any treatment for your child when it was sick during the past two weeks?

Responses	Intervention Area				Control Area			
	Baseline N=25		Final N=37		Baseline N=20		Final N=23	
	N	%	N	%	N	%	N	%
a. Yes	25	100%	37	100%	20	100%	23	100%
b. Nothing (go to Q#13)	0		0		0		0	

9. What treatment did the child receive?

Responses	Intervention Area				Control Area			
	Baseline N=25		Final N=37		Baseline N=20		Final N=23	
	N	%	N	%	N	%	N	%
a. Medicine for fever and/or pain (such as Paracetamol)	17	68%	22	59.5%	11	55%	8	34.8%
b. Cough medicine	6	24%	9	24.3%	6	30%	5	21.7%

c. Antibiotics	19	76%	33	89.2%	5	25%	16	69.6%
d. Don't remember/don't know	3	12%	4	10.8%	6	30%	7	30.4%

If the answer to "c" is yes, go to Q11. If not, go to Q13.

10. What antibiotic and dosage did the child receive?

Responses	Intervention Area				Control Area			
	Baseline N=19		Final N=33		Baseline N=5		Final N=16	
	N	%	N	%	N	%	N	%
a. Time/day correct	9	47.4%	14	42.4%	4	80%	1	6.3%
b. Duration correct	14	73.7%	22	66.7%	2	40%	8	50%
c. Completely correct (mg/tablet, how much by age, time/day and duration)	5	26.3%	8	24.2%	1	20%	0	0
d. Don't know and incorrect	13	68.4%	25	75.8%	4	80%	16	100%

11.a. Where did you go to obtain that treatment? (Check the appropriate box. Check more than one box if appropriate.)

Responses	Intervention Area				Control Area			
	Baseline N=25		Final N=37		Baseline N=20		Final N=23	
	N	%	N	%	N	%	N	%
a. Pharmacy	1	4%	1	2.7%	1	5%	1	4.3%
b. Health center	16	64%	31	83.8%	9	45%	17	73.9%
c. Hospital	3	12%	3	8.1%	5	25%	1	4.3%
d. Private clinic	4	16%	1	2.7%	5	25%	4	17.4%
e. Village injectionist	1	4%	1	2.7%	0	0	0	

11.b. How much did you pay for all the expenses related to consultation and drugs?

Responses	Intervention Area		Control Area	
	Baseline N=25	Final N=37	Baseline N=20	Final N=23

US dollar range for health service fee	Health center/hospital	$ 0.125 – $2.25
	Clinic/village	$ 2.75 - $ 35
	Injectionist	

11.c. When did you seek that treatment after your developed symptoms?

Responses	Intervention Area				Control Area			
	Baseline N=25		Final N=37		Baseline N=20		Final N=23	
	N	%	N	%	N	%	N	%
a. Immediately	20	80%	31	83.8%	17	85%	20	87%
b. Within 24 hours	5	20%	1	2.7%	2	10%	1	4.3%
c. Two days later	0		4	10.8%			1	4.3%
d. Three days later and more	0		1	2.7%	1	5%	1	4.3%
e. (a+b)	25	100%	32	86.5%	19	95%	21	91.3%

KNOWLEDGE OF USAGE OF BACTRIM AND AMOXICILLIN

(For all the mothers with children under five years)

12. What are the dosage of Bactrim

a. How many type of Bactrim tablets with mg?

Responses	Intervention Area N=100				Control Area N=100			
	Baseline		Final		Baseline		Final	
	N	%	N	%	N	%	N	%
a. 480mg	15	15%	35	35%	13	13%	13	13%
b. 960mg	11	11%	33	33%	9	9%	9	9%
c. Don't know	85	85%	65	65%	87	87%	87	87%

b. How do you use Bactrim or Cotrim for pneumonia treatment for sick children?

* How much mg by age for Bactrim 480mg

Responses		Intervention Area N=100				Control Area N=100			
		Baseline		Final		Baseline		Final	
		N	%	N	%	N	%	N	%
1month - <2 months	Correct	21	21%	32	32%	6	6%	19	19%
	Incorrect	4	4%	2	2%	3	3%	11	11%
	Don't know	75	75%	66	66%	91	91%	70	70%
2months - < 12 months	Correct	19	19%	29	29%	8	8%	20	20%
	Incorrect	7	7%	7	7%	4	4%	8	8%
	Don't know	74	74%	64	64%	88	88%	72	72%

1 year - < 5 years	Correct	19	19%	29	29%	7	7%	24	24%
	Incorrect	5	5%	7	7%	5	5%	5	5%
	Don't know	76	76%	64	64%	88	88%	71	71%
3 times correctly use of Bactrim 480mg, mg by age	3 times correct	15	15%	26	26%	5	5%	13	13%

Responses	Intervention Area N=100				Control Area N=100			
	Baseline		Final		Baseline		Final	
	N	%	N	%	N	%	N	%
Time/day correct	21%	21%	28	28%	19	19%	12	12%
Duration correct	22%	22%	40	40%	8	8%	15	15%
Bactrim 480mg, completely correct (mg/tablet, how much by age, time/day and duration)	9%	9%	20	20%	2	2%	3	3%
Don't know and incorrect	91%	91%	80	80%	98	98%	97	97%

How much mg by age for Bactrim 960mg

Responses		Intervention Area N=100				Control Area N=100			
		Baseline		Final		Baseline		Final	
		N	%	N	%	N	%	N	%
1month - <2 months	Correct	12	12%	25	25%	3	3%	11	11%
	Incorrect	6	6%	7	7%	0	0	11	11%
	Don't know	82	82%	68	68%	97	97%	78	78%
2months - < 12 months	Correct	16	16%	30	30%	4	4%	16	16%
	Incorrect	2	2%	3	3%	1	1%	6	6%
	Don't know	82	82%	67	67%	95	95%	78	78%

1 year - < 5 years	Correct	15	1 5 %	29	2 9 %	4	4%	22	2 2 %
	Incorrect	3	3%	4	4%	3	3%	2	2%
	Don't know	82	8 2 %	67	6 7 %	93	9 3 %	76	7 6 %
3 times correctly use of Bactrim 960mg, mg by age	3 times correct	11	1 1 %	24	2 4 %	3	3%	11	1 1 %

Responses	Intervention Area N=100				Control Area N=100			
	Baseline		Final		Baseline		Final	
	N	%	N	%	N	%	N	%
Time/day correct	21	21%	28	28%	19	19%	12	12%
Duration correct	22	22%	40	40%	8	8%	15	15%
Bactrim 960mg, completely correct (mg/tablet, how much by age, time/day, and duration)	7	7%	20	20%	1	1%	3	3%
Don't know and incorrect	93	93%	80	80%	99	99%	97	97%
Both Bactrim 480mg+960mg, completely correct (mg/tablet, how much by age, time/day and duration)	7	7%	18	18%	1	1%	3	3%
Don't know and incorrect	93	93%	82	82%	99	99%	97	97%

13. What are the dosage of Amoxicillin?

c. How many types of Amoxicillin tablets with mg?

Responses	Intervention Area N=100				Control Area N=100			
	Baseline		Final		Baseline		Final	
	N	%	N	%	N	%	N	%
a. 125mg	4	4%	0	0%	1	1%	0	0%
b. 250mg	16	16%	42	42%	18	18%	29	29%
c. 500mg	17	17%	40	40%	15	15%	22	22%
d. Don't know	79	79%	58	58%	82	82%	69	69%

b. How do you use Amoxicillin for pneumonia treatment for sick children?

* How much mg by age for Amoxicillin 250mg

Responses		Intervention Area N=100				Control Area N=100			
		Baseline		Final		Baseline		Final	
		N	%	N	%	N	%	N	%
1month - <2 months	Correct	22	22%	26	26%	6	6%	16	16%
	Incorrect	14	14%	7	7%	4	4%	14	14%
	Don't know	64	64%	67	67%	90	90%	70	70%
2months - < 12 months	Correct	33	33%	33	33%	6	6%	24	24%
	Incorrect	5	5%	3	3%	4	4%	8	8%
	Don't know	62	62%	64	64%	90	90%	68	68%
1 year - < 5 years	Correct	34	34%	32	32%	7	7%	31	31%
	Incorrect	1	1%	3	3%	4	4%	5	5%
	Don't know	65	65%	65	65%	89	89%	64	64%
3 times correctly use of Amoxicillin 250mg, mg by age	3 times correct	20	20%	24	24%	4	4%	13	13%

Responses	Intervention Area N=100				Control Area N=100			
	Baseline		Final		Baseline		Final	
	N	%	N	%	N	%	N	%
Time/day correct	39	39%	30	30%	29	29%	37	37%
Duration correct	27	27%	38	38%	11	11%	15	15%
Amoxicillin 250mg, completely correct (mg/tablet, how much by age, time/day and duration)	9	9%	20	20%	3	3%	4	4%
Don't know and incorrect	91	91%	80	80%	97	97%	96	96%

How much mg by age for Amoxicillin 500mg

Responses		Intervention Area N=100				Control Area N=100			
		Baseline		Final		Baseline		Final	
		N	%	N	%	N	%	N	%
1month - <2 months	Correct	7	7%	13	13%	2	2%	5	5%
	Incorrect	15	15%	17	17%	2	2%	22	22%
	Don't know	78	78%	70	70%	96	96%	73	73%
2months - < 12 months	Correct	21	21%	27	27%	4	4%	12	12%
	Incorrect	6	6%	6	6%	0	0%	14	14%
	Don't know	73	73%	67	67%	96	96%	74	74%
1 year - < 5 years	Correct	25	25%	27	27%	4	4%	19	19%
	Incorrect	2	2%	6	6%	4	4%	8	8%
	Don't know	73	73%	67	67%	92	92%	73	73%
3 times correctly use of Amoxicillin 500mg, mg by age	3 times correct	6	6%	13	13%	2	2%	5	5%

Responses	Intervention Area N=100				Control Area N=100			
	Baseline		Final		Baseline		Final	
	N	%	N	%	N	%	N	%
Time/day correct	39	39%	30	30%	29	29%	37	37%
Duration correct	27	27%	38	38%	11	11%	15	15%
Amoxicillin 500mg, completely correct (mg/tablet, how much by age,	3	3%	10	10%	2	2%	2	2%

time/day and duration)								
Don't know and incorrect	97	97%	90	90%	98	98%	98	98%
Both Amoxicillin 250mg+500mg, completely correct (mg/tablet, how much by age, time/day and duration)	2	2%	10	10%	2	2%	1	1%
Don't know and incorrect	98	98%	90	90%	98	98%	1	1%

14. Completely correct (Bactrim+Amoxicillin, mg/tablet, how much by age, time/day and duration).

Responses	Intervention Area N=100				Control Area N=100			
	Baseline		Final		Baseline		Final	
	N	%	N	%	N	%	N	%
Completely correct both Bactrim and Amoxicillin (mg/tablet, how much by age, time/day and duration)	1	1%	10	10%	1	1%	1	1%
Don't know and incorrect (both Bactrim and Amoxicillin for mg/tablet, how much by age, time/day and duration)	99	99%	90	90%	99	99%	99	99%

ANNEX 5: Practicum schedule

Planned Activities	2007												2008
	J	F	M	A	M	J	J	A	S	O	N	D	J
Compile monthly states	X	X	X	X	X	X	X	X	X				
Finalize questionnaires for a baseline survey	X												
Baseline survey in two health center (intervention and control areas)	X												
Refresh training to care groups on diagnosis of pneumonia and treatment	X	X	X	X									
Volunteers do home visit to teach mothers	X	X	X	X									
Conduct final survey or interview					X								
Tabulate result of survey						X							
Data analysis							X						
Begin drafting written report (Introduction, description of community, theory of change, etc.				X	X	X	X	X	X	X	X	X	

Write up the result													X

ANNEX 6: Preliminary household drug use

World Relief Cambodia
Light for Life Child Survival Cost Extension Project
Ponhea Kriek District, Kampong Cham Province of Cambodia

Preliminary research on household drug use, January 2004

There are three villages in Dambai selected to conduct the starting point of seller research, one is near a large market and the other two are more isolated villages. All villages have good quality connecting roads. The purpose of this mapping and interviewing is to clearly define who makes the decision for a child to be treated with drugs when they are sick and where the medicines are purchased.

Note: All mothers with children that had been sick in the last two weeks were interviewed.

All the drug providers were interviewed in each of the three villages.N=103
Name of the child: Age range 0-59 months, Means = 19.932 months, Sex: Male =55 =53.4%, Female =48 =46.6%

1. Did your child have any following diseases in the last 2 weeks?

Response	N	%
a. diarrhea	53	51%
b. blood in stool	5	4.9%
c. cough	49	47.6%
d. difficult breathing	14	13.6%
e. fast breathing	19	18.4%
f. fever	69	67%
g. malaria	0	
h. convulsion	0	
i. nothing	15	14.6%

N=15

2. Did your child ever have any following diseases in the last year?

Response	N	%
a. diarrhea	6	40%
b. blood in stool	1	6.7%
c. cough	3	20%
d. difficult breathing	3	20%
e. fast breathing	2	13.3%
f. fever	8	53.3%

g. malaria	0	
h. convulsion	0	
i. nothing	2	13.3%

N=101

3. When your child had disease, did you give him/her modern medicine?

a. Yes =90, =89.1%

b. No =11, =10.9%

N=90

4. Who made decision to give this medicine?

Response	N	%
a. Me (mother)	23	25.8%
b. My husband	5	5.6%
c. My mother	11	12.2%
d. My friend	0	
e. My aunt	0	
f. Drug seller	10	11.1%
g. Village injectionist	13	14.4%
h. MOH staff work in private provider	22	24.4%
i. Health center	6	6.7%
j. Unknown	0	

N=52

5. What medicines did you give?

Response	Drug's effectiveness	N	%
a. Paracetamol	Relief fever	34	65.4%
b. Penicilline	Antibiotic	1	1.9%
c. Ampicilline	Antibiotic	10	19.2%
d. Amoxicilline	Antibiotic	4	7.7%
e. Bactrim (cotrimoxazole)	Antibiotic	5	9.6%
f. Cotrim (contrimoxazole)	Antibiotic	1	1.9%
g. ORS	Oral Rehydration Solution	0	
h. Antidiarrhea	Antidiarrhea	4	7.7%

i. Erythromycine	Antibiotic	1	1.9%
j. Tetracycline	Antibiotic	1	1.9%
k. Neo-codion	Cough medicine	1	1.9%
l. Analgin ampoule	Relief fever	1	1.9%
m. Unknown		14	26.9%

N=38

6. What dose do you use?

Example:

See package	name	Form	Mg in 1tablet	#tablet/spoon per time	#time per day	# days
Yes	ampicilline	Tablet	500mg	1	3	7

a. Correct 8 = 21.1%

b. Incorrect 30 = 78.9%

N=38

7. Why did you use it?

Response	N	%
Reduce fever	14	36.8%
Afraid a child has sore throat	4	10.5%
Use before	5	13.1%
Can recover from sick	12	31.5%
A child has cough	4	10.5%
Follow people's advice	2	5.2%

N=90

8. Where did you buy it?

Response	N	%
a. drug seller	24	26.7%
b. village injectionist	15	16.7%
c. MOH staff work in private provider	19	21.1%
d. health center	7	7.8%

e. market	25	27.8%

N=90

9. Why did you buy the medicine there?

Drug seller

Response	N	%
Can recover from sick	7	7.7%
Have medicine they want	7	7.7%
Close to	8	8.8%
Trust him	3	3.3%
Follow people's advice	1	1.1%

Village injectionist

Response	N	%
Can be loaned	1	1.1%
Close to	5	5.5%
Trust him	5	5.5%
Have medicine they want	1	1.1%
Can recover from sick	2	2.2%

MOH staff work in private provider

Response	N	%
Can recover from sick	5	5.5%
Trust medical person	6	6.6%
He has skill	2	2.2%
True medicine	1	1.1%
Close to	1	1.1%
Follow people's advice	1	1.1%

Health center

Response	N	%
Trust medical person	3	3.3%
Have medicine they want	1	1.1%
Can recover from sick	1	1.1%
A child sick	2	2.2%

Market

Response	N	%
Have medicine they want	7	7.7%
Can recover from sick	4	4.4%
Trust him	5	5.5%
Cheap	3	3.3%
Used to go there before	3	3.3%

COMPARITION IN VILLAGES:
1= Neang Tert Village (more isolated), 2= Kanor Village (near a large market),
3= Sromor Village (more remote)

1. Did your child have any following diseases in the last 2 weeks?

Response	Village 1		Village 2		Village 3	
	N=24	%	N=45	%	N=34	%
a. diarrhea	10	41%	24	53.3%	19	55.9%
b. blood in stool	0		5	11.1%	0	
c. cough	9	37.5%	23	51.1%	17	50%
d. difficult breathing	4	16.9%	5	11.1%	5	14.7%
e. fast breathing	7	29.2%	5	11.1%	7	20.6%
f. fever	18	75%	30	66.7%	21	61.8%
g. malaria	0		0		0	
h. convulsion	0		0		0	
i. nothing	5	20.8%	6	13.3%	4	11.8%

2. Did your child ever have any following diseases in the last year?

Response	Village 1		Village 2		Village 3	
	N=5	%	N=6	%	N=4	%
a. diarrhea	1	20%	2	33.3%	3	75%
b. blood in stool	0		1	16.7%	0	
c. cough	0		3	50%	0	
d. difficult breathing	1	20%	2	33.3%	0	
e. fast breathing	1	20%	1	16.7%	0	
f. fever	1	20%	4	66.7%	3	75%
g. malaria	0		0		0	
h. convulsion	0		0		0	
i. nothing	2	40%	0		0	

3. When your child had disease, did you give him/her modern medicine?

Response	Village 1		Village 2		Village 3	
	N=22	%	N=45	%	N=34	%
a. Yes	20	90.9%	38	84.4%	32	94.1%
b. No	2	9.1%	7	15.6%	2	5.9%

4. Who made decision to give this medicine?

Response	Village 1		Village 2		Village 3	
	N=20	%	N=38	%	N=32	%
a. Me	2	10%	11	28.9 %	11	34.4 %
b. My husband	2	10%	2	5.3%	1	3.1%
c. My mother	2	10%	8	21.1 %	1	3.1%
d. My friend	0		0		0	
e. My aunt	0		0		0	
f. Drug seller	0	NA	4	10.5 %	6	18.8 %
g. Village injectionist	5	25%	0		8	25%
h. MOH staff work in private provider	5	25%	12	31.6 %	5	15.6 %
i. Health center	4	20%	2	5.3%	0	
j. Unknown	0		0		0	

Note: In the Village 1, there is no drug seller in their own village. It is not available for the drug seller in this village.

5. What medicines did you give?

Response	Village 1		Village 2		Village 3	
	N=13	%	N=26	%	N=13	%
a. paracetamol	7	53.8%	18	69.2%	9	69.2
b. penicillin	1	7.7%	0		0	
c. ampicilline	3	23.1%	5	19.2%	2	15.4
d. amoxicilline	1	7.7%	1	3.8%	2	15.4
e. bactrim	0		2	7.7%	3	23.1
f. cotrim	0		0		1	7.7
g. ORS	0		0		0	
h. antidiarrhea	1	7.7%	2	7.7%	1	7.7
i. erythromycin	0		1	3.8%	0	
j. tetracycline	0		1	3.8%	0	
k. neo-codion	0		0		1	7.7
l. analgin ampoule	0		0		1	7.7
m. unknown	6	46.2%	8	30.8%	0	

In the training of diarrhea intervention, ORS is not included in the modern medicine. It is mentioned in the ORT.

6. What dose do you use?

Example:

See package	name	Form	Mg in 1tablet	#tablet/spoon per time	#time per day	# days
Yes	ampicilline	Tablet	500mg	1	3	7

Response	Village 1		Village 2		Village 3	
	N=7	%	N=18	%	N=13	%
a. Correct	1	14.3%	4	22.2%	3	23.1%
b. Incorrect	6	85.7%	14	77.8%	10	76.9%

7. Why did you use it?

Response	Village 1		Village 2		Village 3	
	N=7	%	N=18	%	N=13	%
Reduce fever	5	71.4%	3	16.6%	5	38.4%
Afraid a child has sore throat	2	28.5%	2	11.1%	0	
Use before	0		4	22.2%	1	7.6%
Can recover from sick	0		8	44.4%	4	30.7%
A child has cough	2	28.5%	1	5.5%	1	7.6%
Follow people's advice	0		2	2%	1	7.6%

8. Where did you buy it?

Response	Village 1		Village 2		Village 3	
	N=20	%	N=38	%	N=32	%
a. drug seller	2	10%	10	26.3%	12	37.5%
b. village injectionist	7	35%	2	5.3%	6	18.8%
c. MOH staff work in private provider	3	15%	11	28.9%	5	15.6%
d. health center	5	25%	2	5.3%	0	
e. market	3	15%	13	34.2%	9	28.1%

Note: In the Village 1, there is no drug seller in their own village but when a child was sick they went to buy drugs from the drug seller in Stung Market. Stung Market is about 6 Km from this village.

Drug seller is the people only selling drugs but not provide injections and IV treatment. Village injectionist is the people selling drugs and also providing injections and IV treatment. MOH staff work off time from

government for their own clinic (private clinic at home) is the MOH staff work in the private provider. Market is the answer that the mother said that "buy drugs from market" but not mention name of the drug providers.

9. Why did you buy the medicine there?

Drug seller

Response	Village 1		Village 2		Village 3	
	N=20	%	N=38	%	N=32	%
Can recover from sick	1	5%	1	2.6%	5	15.6%
Have medicine they want	1	5%	5	13.1%	1	3.1%
Close to	1	5%	2	5.2%	5	15.6%
Trust him	0		0		1	3.1%
Follow people's advice	0		1	2.6%	0	

Village injectionist

Response	Village 1		Village 2		Village 3	
	N=20	%	N=38	%	N=32	%
Can be loaned	1	5%	0		0	
Close to	3	15%	0		2	6.2%
Trust him	2	10%	2	5.2%	2	6.2%
Have medicine they want	0		1	2.6%	0	
Can recover from sick	1	5%	0		2	6.2%

MOH staff work in private provider

Response	Village 1		Village 2		Village 3	
	N=20	%	N=38	%	N=32	%
Can recover from sick	1	5%	2	5.2%	2	6.2%
Trust medical person	1	5%	1	2.6%	2	6.2%
He has skill	0		1	2.6%	0	
True medicine	0		1	2.6%	0	
Close to	0		0		0	
Follow people's advice	0		1	2.6%	0	
He know how to treat	0		4	10.5%	0	

Health center

Response	Village 1		Village 2		Village 3	
	N=20	%	N=38	%	N=32	%
Trust medical person	1	5%	2	5.2%	0	
Have medicine they want	0		1	2.6%	0	
Can recover from sick	1	5%	0		0	
A child sick	2	10%	0		0	

1= Neang Tert Village is about 10 Km from Chung Cheach health center, 2= Kanor Village is about 4 Km from Chung Cheach health center, 3= Sromor Village

3= Sromor Village is about 14 Km from Chung Cheach health center.

Market

Response	Village 1		Village 2		Village 3	
	N=20	%	N=38	%	N=32	%
Have medicine they want	1	5%	3	7.8%	3	9.3%
Can recover from sick	0		2	5.2%	0	
Trust him	0		0		1	3.1%
Cheap	1	5%	0		1	3.1%
Used to go there before	0		0		2	6.2%
No drug seller here	1	5%	0		0	
He know how to treat	0		4	10.5%	0	

1= Neang Tert Village is about 6 Km from Stung Market (large market), 2= Kanor Village is about 6 Km from Stung Market, 3= Sromor Village

3= Sromor Village is about 20 Km from Stung Market.

Among various reasons for why they buy drugs there, the result shows that there are 4 main reasons included trust him 22=24.4%, can recover from sick 19=21%, have medicine they want 16=17.7%, close 14=15.5%.

DISCUSSION:

Frequency of disease:

The finding shows that most common disease of the child is fever (67%) but the fever is only the signs of many diseases; Diarrhea (51.5%) is the most common disease of the child and cough (47.6%) is the second diseases; and Pneumonia (difficult breathing and fast breathing=32%) is the third child disease in these three villages in Dambai District.

Among the sick child, the survey shows 89.1% of the mother reported they used modern medicine. The most influence people in making the decision on using drug when the child sick is the mother (25.8%), the second people is the MOH staff who works in the private provider(24.4%), the third people is the village injectionist (14.4%)and the fourth people is the grand mother(12.2%) and the drug seller (11.1%). This finding shows clearly that the project should train the mothers, as well as grand mother and the drug seller on using drug correctly for the sick child. MOH staff, they have already been trained and supported from the contracting agency and the ministry of health. The village injectionist, they have been some training from MOH staff working in private clinic.

Drug use:

There are only 21.1% of the mothers, grand mother and husband used it correctly and 78.9% use it incorrectly (drug seller, village injectionist, MOH staff and health center are not interviewed in this survey).

The reason why they use it:

The most reason for using drugs is to reduce fever, symptom treatment (36.8%). 31.5% is to help the sick child recover from illness, 13.1% is used it before and 10.5% to help the child with cough. The finding of the reason why the mothers and grand mothers use it could help the project focus on their believes, how much and how long can really help the sick child completely recover.

Where the mother buy drugs and why they buy it there:

1. The market is the most places (27.8%) for the mother to go because there are a lot of medicine they want (7.7%), trust him (5.5%) and it is cheap (3.3%).
2. Drug seller is the second places (26.7%) for the mother to go because there are a lot of medicine they want too (7.7%) and it is close (8.8%).
3. MOH staff work in the private provider (21.1%) is the third places for the mother to go because the MOH staff have skill (2.2%) and trust them (6.6%).
4. Village injectionist is the fourth places (16.7%) for the mother to go because it is close (5.5%) and trust him (5.5%).
5. Health center is the fifth one (7.8%) for the mother to go because they trust him3.3%.

Besides what have been mentioned above, in each of the drug providers has some same points, there are trust him and can help the sick child recover from sickness but the percentage is differences.

This finding could help the project to see where and why of the mother go there because the mothers have already planned to buy it what they want.

Ponhea Kriek District, Kampong Cham Province of Cambodia

Preliminary research on drug provider, January 2004

The purpose of this mapping and interviewing is too clearly define who is selling drugs in the villages.

All the drug providers were interviewed in this survey.
N=10
Drug provider age range: 21-57 years; Means=32.5 years
Sex: Male=1=10%, Female=9=90%

Education:
N=10
How many years have you attended school?

Response	N=10	%
a. Never	2	20%
b. Less than 3 years	0	
c. 3-6 years	6	60%
d. secondary or higher	2	20%

Can you read?
a. Yes 8=80%
b. No 2=20%

Can you write?
a. Yes 8=80%
b. No 2=20%

Which language do you speak?

Response	N=10	%
a. Khmer	10	100%
b. Arabic	0	
c. Chinese	0	
d. Vietnam	0	

Do you have degree or diploma?
a. Yes 3=30%
b. No 7=70%
1. What is the type of your business/ can you describe your business?

Response	N=10	%
a. Sell drugs and provide injections and IV treatment	3	30%
b. Sell drugs, grocery, vegetable and foods but not provide injections and IV treatment	7	70%

Are you owner of the business?

a. Yes 10=100%

b. No 0=0%

Who else help you to sell drugs?

Response	N=10	%
a. Wife/husband	3	30%
b. My daughter/son	1	10%
c. My brother/sister	0	
d. My mother/father	0	
e. No one	6	60%

2. What type of drugs you are selling?

Can you help me to list the ten most frequently sold drugs in the last three months?

Response	N=10	%
1. Paracetamol (paradol) for reduce fever	10	100%
2. Ampicilline	9	90%
3. Tetracycline	8	80%
4. Penicilline	6	60%
5. Amoxicilline	5	50%
6. Popy (paracetamol 500mg, clorpheniramine maleate 2mg) for a cold	5	50%
7. Vitamin C	5	50%
8. Analgin (metamizol 10g, lodocaine Hcl 0,02mg) for reduce fever and pain	3	30%
9. Dagenan (sulfadiazine 0,5g)	2	20%
10. Optalidon (paracetamol 250mg, caffeine 25mg)	2	20%
11. Dexamethazone	2	20%
12. Multivitamin	2	20%
13. Co-trimoxazole	2	20%
14. Alergin (chlorpheniramine)	1	10%
15. Tacampong/Frossy (paracetamol 500mg, phenylephrine hydrochloride10mg, chlorpheniramine maleate 4mg) for a cold	1	10%
16. M ce nai (Griseofuvine 500mg)	1	10%
17. Glucose ampoule	1	10%
18. Spasfon for anti spasmodique of the intestine and	1	10%

abdominal cramps		
19. Antacil (aluminium hydroxide or dried aluminium hydroxide gel 250mg)	1	10%
20. Carbophos (charbon vegetal 400mg)	1	10%
21. Roxen /piroxicam(DCL) for anti inflamatory	1	10%

If not mentioned in the table above, ask about contraceptive methods

Response	N=10	%
a. Daily pill	2	20%
b. Monthly pill	0	
c. Injection	2	20%
d. Condom	0	
e. No	7	70%

3. Where do you purchase these drugs?
List several sources as many as possible with some priority.

Response: Only Stung market 10=100%

4. Do you usually advise your clients? N=10
   a. Yes 8=80%
   b. No 2=20%

If yes:
5. What type of advice do you give?
   Type of drugs?
   Amount of drugs?

Response	N=8	%
a. Correct	3	37.5%
b. Incorrect	5	62.5%

Referral:

Response	N=8	%
a. Yes	4	50%
b. No	4	50%

6. How do you know this/ what are sources?

Response	N=10	%
a. Experience, learned by memory from drug seller	4	40%

in Stung market		
b. Learned from private clinic and have document	2	20%
c. Learned from Save the Children Australia (Birth Spacing training)	2	20%
d. Learned from my uncle and have a book (where there is no doctor)	1	10%
e. Don't know/ nothing	1	10%

7. Can you explain what type of drugs you would recommend for a child with the following diseases?
Sample:

#	Diseases	Drugs	Amounts (dosage)
1	Simple diarrhea		
2	Severe diarrhea (prolonged, signs of dehydration, vomiting)		
3	Severe diarrhea (blood in stool, dysentery)		
4	Simple cough		
5	Cough with fever and difficult breathing		
6	High fever (Malaria)		

Correct treatment response:

#	Diseases	N=10	%
1	Simple diarrhea	0	
2	Severe diarrhea (prolonged, signs of dehydration, vomiting)	3	30%
3	Severe diarrhea (blood in stool, dysentery)	0	
4	Simple cough	0	
5	Cough with fever and difficult breathing	0	
6	High fever (Malaria)	0	

8. When would you recommend to the mother of a sick child to go to the health center?

Response	N=10	%
a. High fever	3	30%
b. Diarrhea with dehydration	2	20%
c. Diarrhea with blood in stool	1	10%
d. Take medicine but not recover	3	30%
e. Difficult/ fast breathing	2	20%
f. Lethargic	1	10%
g. Severe disease	1	10%
h. Anemia	1	10%
i. Can not eat	1	10%
j. Don't know	3	30%

Can you give us specific examples of signs/symptoms for a child with the following diseases?

#	Diseases	Signs/Symptoms
1	Diarrhea	
2	Pneumonia	
3	Malaria	

Respond correctly signs/symptoms:

Response	N=10	%
a. Diarrhea	6	60%
b. Pneumonia	5	50%
c. Malaria	5	50%

9. Where would you recommend going?

Response	N=10	%
a. Go to the health center/ hospital	3	30%
b. Go to the health service provider	2	20%
c. Go for blood test	1	10%
d. Simple disease, take care him/her at home	1	10%
e. Never recommend	3	30%

10. Would you like to have one day training on drugs for the most common diseases? N=10
    a. Yes 9=90%
    b. No 1=10%

11. Do you have any commend or recommendation for World Relief to help you and your community?

Response	N=10	%
a. Want to have a health center	2	20%
b. Want WR to provide treatment and medicine	2	20%
c. Want WR to train TBA	1	10%
d. Want WR to provide training on drug	1	10%
e. Want WR to teach all the mothers besides WHE's	1	10%
f. Want WR to provide more training on health to the community	1	10%
g. Don't know	2	20%

DISCUSSION:

Education:

The finding shows that; 80% of the drug providers can read and write, 20% of them attended in secondary or high school; and 20% can not read and write. There are only 30% have certificate (volunteer certificate 10%, Gender certificate 10%, and college state school certificate 10%). This can help the project focus on training the drug provider how to use the job aids correctly.

Type of the drug providers:

This survey shows, there two types of the drug providers, one is village injectionist 30% (they sell drug and provide injections and IV treatment) and the other one is drug seller 70% (they sell some drugs with grocery but do not provide injections and IV treatment). 100% of the drug providers are the owner of the business, and 30% of them have wife/ husband to help selling it. Others, 10% of them have daughter/son, and 60% of them have no one to help selling drugs.

This is the other issue that the project should consider them in the training as well.

Medicine:

The drug providers reported that the most frequently sold drugs in the last three months are in the table below:

Response	Relationship with diseases	N=10	%
1. Paracetamol	Fever	10	100%
2. Ampicilline	pneumonia	9	90%
3. Tetracycline	diarrhea	8	80%
4. Penicilline	pneumonia	6	60%
5. Amoxicilline	pneumonia	5	50%
6. Popy	Cough and cold	5	50%
7. Vitamin C	cold	5	50%
8. Analgin	Fever	3	30%
9. Dagenan	diarrhea	2	20%
10. Optalidon	Fever	2	20%
11. Dexamethazone	Joint pain	2	20%
12. Multivitamin	Multivitamin	2	20%
13. Co-trimoxazole	diarrhea	2	20%

These drugs above are the most common drugs that well known and commonly used for the simple diseases.

Besides the drugs that mentioned above, birth control methods are sold in the village as well, daily pill 20%, injection 20%.

Where the drug provider purchase drugs:

This finding show that the sources of the drugs flow is only one place or source (Stung market located on high way #7, in Stung village, Kong Kang commune, Ponhea Kriek district). Stung market is the main market for the most of the villages in Ponhea Kriek and Dambai district.

Advice clients:
In this survey, the drug providers reported that 80% they advised their clients, and 20% of them reported that no.
The advice of using drug, 37.5% is correct, and 62.5% is incorrect. The advice of referral the clients, 50% answered "yes" and 50% answered "no". It is good to see the drug providers did some good advice to their clients on referral and using drugs even there is small appropriation.

Sources of the drug providers:
40% of the drug providers mentioned that they leaned by memory and experience it from drug sellers in Stung market, 20% learned from private clinic and have document with them, 20% they leaned from Save the Children Australia on birth spacing training, 10% they learned from uncle and have book to read (where there is no doctor), and the other 10% don't know or nothing.

Practice on using drugs with the certain diseases:
In this survey, among several diseases including simple diarrhea, severe diarrhea (prolonged, signs of dehydration, vomiting), severe diarrhea (blood in stool, dysentery), simple cough, cough with fever and difficult breathing, and high fever; there is 30% for only severe diarrhea (prolonged, signs of dehydration, vomit) that they provided correct treatment practice.

The drug providers also reported that, 30% they give medicine to a sick child first then if the patient does not recover send them to the health center, 30% when they see a child has a high fever, 20% when a child has diarrhea with signs of dehydration, 20% when a child has difficult breathing, 10% when a child has severe disease, 10% when a child has blood in stool, 10% when a child has lethargic, 10% when a child can not eat, 10% when a child has anemia, they would recommend to the mother of a sick child to go to the health center.

This shows that the community health care service is low quality that it needs to improve. Drug sellers also should learn more about dangerous signs need to send to the well trained providers or health center and hospital.

Signs/symptoms of diseases:
In this survey, the drug providers mentioned correctly signs/symptoms for some common diseases, 60% on diarrhea, 50% on pneumonia, and 50% on malaria. This shows that they don't know much about how to diagnosis diseases.

Where the drug seller would recommend going:
30% of the drug sellers answered that they would recommend going to health center or hospital, 20% of them answered that they would recommend going to private health provider, 10% of them answered that they would recommend going for blood test, 10% of them answered that they would recommend take care the patient at home if he/she has a simple disease, and other 30% of them answered that they never do any recommend.
This shows they need to learn where there is a good service that available for them.
Drug seller's training need:
All the drug providers were interviewed, 90% replied that they would like to have one day of training on drugs for most common diseases, and 10% of them replied that they don't want. The project will train drug sellers who want to learn more about drugs.

Community's recommendation for World Relief:
At the end of the survey, all the drug provider were asked for what are their recommendation for World Relief should do to help them and community, 20% of drug providers want to have a health center, 20% of them want WR to provide treatment and medicine, 10% of them want WR to provide training on drugs, 10% of them want WR to train TBA, 10% of them want WR to provide more training on health to the community, 10% of them want WR to teach all the mother directly to complement the work of volunteers, and the other 10% of them don't know.

Project/Research implications:
According to the result of this survey, 25.8% of the mother makes decision on using drugs and 24.4% the MOH staff. According to this result, the project should train the mother and empower them to increase the percentage. The project staffs that have their relatives working in the drug provider were told that the mother come to the shop and ask for specific medicine, if the drug seller does not sell it they will loss their profit. The mother has their own plan using their money they have. If the drug seller advise them to buy more days, they don't follow them because they lack of knowledge how to use drug correctly and they think that the drug seller want their money. The drug sellers have less influence to make the decision for a sick child.

The training on knowledge of the drug use for the mother, the job aids will be deference from the drug seller. New job aids with picture of the common drugs must be developed to fit the need of the mother. So the project does not need to get permission from the ministry of health and it will be much easier than training the drug sellers.

The third people is the village injectionist (14.4%). They are the key people that the mother relies on their advices. The project should train them separately from the mother on knowledge, advice on the drug use and refer a sick child with difficult or fast breathing and other dangerous signs of a sick child to the health center and the health trained providers immediately.
By the way, if the project want to train drug sellers in the remote villages, these drug sellers could be benefited from the drug sellers in Stung Market because the survey shows 40% of drug providers answer that they experienced and learned by memory from the drug sellers in Stung Market. Strung Market is only one resource, the survey shows 100% of drug providers said that they bought drugs from Strung Market. The project should train drug sellers in Stung Market to transfer their knowledge and give job aids copy to their drug seller customers. New Job aids should be developed in the simple way to hand out to their drug seller customers.
The MOH staff, they are already trained and supervised by the Ministry of Health and will be supported by Save the Children Australia. The project will not train them.

ANNEX 7: Randomly Selected Sampling

CHEY NIKUM HEALTH CENTER
The population in 2003
(WHE's=83)

Village	Population	# interview
Andaut	1094	17.80=18
Svay Meas	562	9.14=9
Sdok Sambat	325	5.29=5
Pong Tuk	758	12.33=12
Duk Po	346	5.63=6
Cheung Ang	916	14.90=15
Chey Nikum	1295	21.07=21
Ampok	850	13.83=14
Total	6146	100

CHIPAING HEALTH CENTER

Village	Population	# interview
La Ork	838	6.45=6
Am Pok	1345	10.35=10
Sa Om	2067	15.91=16
Tropaing Sokha	327	2.52=3
Chitok	779	6
Memay	2262	17.41=17

Samakum	2017	15.52=15
Chipaing	2039	15.69=16
Sre Tuk	211	1.6=2
Quor	1108	8.53=9
Total	12993	12993=100

Annex D: SWOT Analysis

SWOT Analysis
Evaluation Team
22 August 2007

Health Centers and Pharmacy

Strengths:
- WHEs and HC cooperate well together.
- HC cooperates with the authorities very well
- HC goes on EPI outreach—it's very effective, and coverage is very high.
- And some HC provide very good delivery care, and people started using the delivery services at the HC now.
- There is good support from NGOs (WR and SCA). This makes people have confidence in the services at the HC.
- Management of HC is very good.
- The quality of service is very good.
- Private pharmacy has good knowledge (because sometimes they work at the HC too). Medicine storage is very good.
- Private pharmacy and Health Center have good hygiene (clean working area).

Weaknesses:
- Sometimes HC staff have a bad attitude towards the community.
- Some HC staff are not patient because they have a lot of work to do, and do not have endurance. They only have 6 staff. They are responsible for the health in the village, for the monks.
- Some HC staff are not punctual. Because they are poor, so they "steal" the time to work outside the HC.
- Lack of medicine. Medicine supply does not meet the demand.
- The knowledge of the staff is limited. They want to do this work, but their knowledge is limited, so they don't do it. Some want to learn more, but they can't. NGOs used to train the staff. After some staff get enough training, they stop working at HC.
- Some pharmacists are not professionals. They work in the HC but they're not trained in pharmacy. They are health care providers who carry drugs to treat people, but they're not pharmacists.
- Some pharmacies are illegal.

Opportunities:

- Some HC can be a role model and we can learn from their weaknesses.

Threats:
- Poverty of the people in the community.
- Lack of knowledge of people in the community. If they don't have knowledge, they might not come and use the services in the HC or hospital.
- Distances are far—difficulty traveling from the community to the HC

Mothers

Strengths:
- Many mothers know that they are very important in providing health.
- Many mothers participate and practice the education and health advice from volunteers.
- Mothers have a vision for the future that no child will die from preventable diseases.
- Mothers know the WHEs' duty/function (job description). To go to teach, call children for vaccination, teach sanitation, take care of pregnant women, teach about common diseases…

Weaknesses:
- Some mothers do not know how WHEs have a relationship with the village leaders and HC. They see that WHEs go to see village leaders and HC, but they don't know why they go. (This is important so that they'll value/respect the volunteers more and have more confidence in them. If mothers don't have confidence in WHEs, they won't go to them when they have problems.)
- Some mothers don't have any ideas for how to strengthen the WHEs.

Opportunities:
- Explain to the mothers more about the WHEs' roles with the HC and village leaders.

Threats:
- The knowledge of the women is limited.
- Family condition (husband doesn't feel responsible for the family's health—they rely on the mothers to take care of the children)

Volunteers

Strengths:
- The WHEs go and educate from door to door. The educate about vaccination, iron tablets for pregnant women.
- When they find sick people, WHEs tell them to use HC services or even takes them to the HC.
- The WHEs go house to house to gather the pregnant women and children to come to get immunized.
- WHEs write a report for the HC, Village leaders, and WR staff.

- The CGLs and CGCs call the WHEs together for a monthly meeting. CGLs and CGCs also go to a monthly meeting at the HC.

Weaknesses:

- WHEs focus on children under 2 and pregnant women, and don't spend as much time with children older than 2 but under 5. It's easier to reach the mothers with children under 2 because they're at home more (mothers with children over 2 go to the field more).
- Sometimes WHEs do not bring the feedback from the HC to the general community. The WHEs go to the HC meeting every month, but sometimes they don't tell the community when the HC outreach is coming.
- The WHEs hesitated to join the meetings because they haven't received an incentive. Not much enthusiasm for participation.

Opportunities:

- Give more comprehensive education to the mothers that targets not just children under 2, but also older children under 5.
- Take opportunities to educate women, according to the time that the woman is at home. (If the mother is not home in the morning, the WHE should go back in the evening. Or, when the mother is taking a rest in the field, the WHE could use that opportunity to teach them)

Threats:

- WHEs husbands get angry because they take time away from home to other people's houses.
- The women at home are not enthusiastic about participating with WHEs.
- The WHEs are busy with their own work, so they don't have much time to go out and teach mothers.

Men (includes Men's BC volunteers)

Strengths:

- Men stimulate the women to listen to the WHEs and practice what they teach, and the men also practice what the WHEs teach. The men learn the lessons from their wives and also from the Men's BC.
- The men pass the knowledge that they receive from WHEs to others.
- The men want to become MBCV (Men's Behavior Change Volunteers) to know health like the women know health, so that they can work together with the women for the community.
- They believe that in the future no children will die from preventable diseases.

Weaknesses:

- Some men think that health issues are not very important, because taking care of the kids and health issues are women's work
- Some men practice unhealthy behaviors like smoking and drinking.
- Some men do not want their wives to listen to the WHEs and take their children to get vaccinated because they think that if their children get vaccinated, they'll get side effects (fever, cry a lot, or become mean).

- Some men think that health is not important. They think men's work, making money and working in the field, is more important.

Opportunities:

- We must teach all the men. (Men are not considered weak if that know about health—they are considered strong)
- Men are interested in the health sector—they want their families to be healthy.
- Men have an obligation to be responsible for health in the family (cultural value in Cambodia).

Threats:

- Men are very busy doing farming, to feed their family.
- Men have low general knowledge (including health knowledge).
- Men's health knowledge is low, but even if they have a little knowledge they don't practice or apply it.

Village Leaders and Commune Councils

Strengths:

- They support volunteers and promote health in the community.
- They want no children in the community to die from preventable diseases.

Weaknesses:

- They are not enthusiastic about WHEs (about meeting with them—especially the Commune Council)
- They do not pay attention to the health report of the community from the WHE. The CC chiefs let their assistants look at the reports, and don't ask to see it.

Opportunities:

- Pay attention to the health information of the community.
- When there is a CC meeting, they do not discuss health problems in the community, but they could.

Threats:

- There is a lot of political work.
- General knowledge is limited (most CC chiefs are literate, but don't have much general knowledge—limited education).
- Some village leaders are illiterate.

Annex E: Presentations/Publications

Publications and Presentations highlighting project results

APHA Annual Meeting, November 5-9, 2005. "Assessing the quality of health services provided by informal drug sellers in rural Cambodia," Poster presentation,
Geof Bowman, Health Advisor, World Relief Cambodia

USAID CSHGP Mini-University June 8, 2006, Baltimore, Maryland
"World Relief's C-HIS & Local Rapid Assessments—WR Cambodia/USAID CSP"
Rachel Hower, Maternal and Child Health Program Officer, World Relief

Christian Connections for International Health, May 29, 2006, Germantown, MD
"Care Groups and Community-Based Behavior Change Communication"
Melanie Morrow, Director of Maternal & Child Health Programs, World Relief

USAID CSHGP Mini-University June 8, 2006, Baltimore, Maryland
"Care Groups – Innovative Strategy for Mobilizing and Sustaining Local Volunteers"
Olubukola Ojuola, Child Survival Specialist, World Relief

Meeting of the International Council, Medical Ambassadors International, August 24, 2006 Modesto, California
"Care Groups and Behavior Change Communication" Half-day presentation and discussion of lessons learned that MAI could apply to its own programming to increase the scale with which they use health volunteers.
Melanie Morrow, Director of Maternal & Child Health Programs, World Relief

Annual meeting of the Rainer Arnhold Fellows Program. September 3-10, 2006.
"Scaling Up Care Groups: Empowering Communities, Saving Lives"
Melanie Morrow, Director of Maternal & Child Health Programs, World Relief

Annex F: Evaluation Team Members

LIGHT for LIFE - Cost Extension Child Survival

Evaluation team members

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Annex G: Final KPC Report

LIGHT FOR LIFE
CHILD SURVIVAL PROJECT

FINAL EVALUATION AND KNOWLEDGE, PRACTICES, and COVERAGE SURVEY

August 2007

Ponhea Kriek – Dombe Operational Health District
Kompong Cham Province, Cambodia

Oun Sivan, Light for Life Child Survival Project Manager
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I. INTRODUCTION

A. Background Information

Cambodia is a country of 13.8 million people located in Southeast Asia and is surrounded by Viet Nam, Thailand, and the Gulf of Thailand.

It has been 32 years since the over throw of the Khmer Rouge, in which was responsible for the destruction of all of the country's infrastructure and murder of over three million people. Unlike other holocaust in which the elderly and handicapped were immediately exterminated, the intellectuals and professionals became fugitives viciously hunted down in an ethnic cleansing attempt to rid the country of Western influence.

Cambodia has made dramatic progress to rehabilitate this country by implementing a Democratic Monarch form of government. Although there has been remarkable progress, the country still has a considerable amount of improvement to make in order to change its current status as one of Asia's poorest countries.

At the completion of the Light for Life Cost Extension Child Survival Project, the program served approximately 184,642 persons in which covers the entire Operational District of Ponhea Kriek-Dambai District in Kompong Cham Province.

B. Evaluation Objectives

The purpose of this final evaluation survey is to present the results from the program objectives as well as assess the likelihood that the behavior changes implemented in each community will continue to produce positive results well after the Light for Life Cost Extension Child Survival project has completed its term. Using the results of this survey and baseline data, together with qualitative field work, the project will see if it has succeeded in doing the following:

1. Reduce the disease burden of children less than five years of age and women 15 – 49 years of age;
2. Strengthen the long-term sustainability of child survival interventions through an integrated community-based approach in harmony with the MOH system; and,
3. Improve the quality and coverage of services provided by the non-formal health providers.

C. Schedule of Activities

7 – 8	May	2007	Train Core Team and Supervisors
9 – 10	May	2007	Train interviewers
11	May	2007	Pilot test survey in the field
12-13	May	2007	Rest days
14-18	May	2007	Data collection
19-20	May	2007	Rest days
21-31	May	2007	Data entry, cleaning, analysis and consensus of findings
	June	2007	Community feedback

II. METHODOLOGY

A. The Questionnaire

Key CS indicators and the questionnaire were taken from the KPC2000+ Toolkit and The KPC2000+ Rapid Core Assessment Tool on Child Health (CATCH).

The questionnaire was designed to be administered to mothers of children under 24 months of age and was composed of 37 questions. A sample of the questionnaire is shown in Appendix A.

B. Determination of Sample Size

Sample size was calculated using the following formula:

$$n=z^2 (pq)/d^2$$

Where n = sample size; z = statistical certainty chosen;
p = estimated prevalence/coverage rate; q = 1 – p; and d = degree of precision.

The p value was defined by the coverage rate that requires the largest sample size (p = 0.5). The margin of error or d value was set at 0.1. The statistical certainty chosen was 95% (z = 1.96). The resulting sample size needed (n) was determined to be:

$$n = (1.96 \text{ X } 1.96)(0.5 \text{ X } 0.5)/(0.1 \text{ X } 0.1)$$
$$n = (3.84)(0.25)/(0.01)$$
$$n = 96$$

In order to compensate for bias which enters the survey from interviewing persons in clusters (rather than randomly selecting 96 persons), the sample size of 96 should be doubled. However, experience has shown that a minimum sample of 210 (7 per cluster) should be used with the given values of p, d and z. To further eliminate bias and to take into account possible non-respondents, the sample size of 300 was chosen (10 per cluster).

95% Confidence Limits for some of the survey results were calculated using the following formula:

$$p \pm Z \text{ x } \sqrt{(pq/n)}$$

Where p = proportion of survey population; z = statistical certainty (for 95%, z = 1.96); q = 1- p; and n = sample size.

EXAMPLE: If the proportion of children in the survey who were immunized with measles vaccine is 61% and n = 300:

$$95\% \text{ confidence limit} = 0.61 \pm \sqrt{[(0.61 \text{ X } 0.39)/300]}$$

$$= 0.61 \pm 0.03 = 0.58 - 0.64$$

In other words, we are 95% sure that the actual proportion of children in the survey region who have measles vaccine is between 58% and 64%.

C. Selection of the Sample

The 30 cluster methodology was used in both the original and expanded project sites, based on "probability proportionate to size", taking a community as a cluster site. The list of communities, with their respective population sizes was used to draw the sample. The sampling interval was calculated by dividing the total population of the CSP area by 30. A random number was then selected using the last 4 digits of the serial number on a bill in order to select the first cluster site. The remaining cluster sites were selected by adding the sampling interval to the original random number until thirty clusters were chosen. The sampling frames for both CSP areas (original and extension project sites) are shown in Appendix B.

The starting point for each cluster was determined in the following manner: each community is divided into groups, and a group number was randomly selected by drawing a piece of paper out of a hat, the interviewers went to the center of the village and a random direction was selected by spinning a pencil on the ground and going in the direction of the point. The starting household was randomly selected and moving in the chosen direction, that number house was the starting point. The second and subsequent households with children under 24 months were the ones which continued in the chosen direction until there were no more, in which case, the household nearest to the right of the previous one was selected.

In each cluster, 10 mothers with children under 2 years were interviewed. In cases where the mother was not available at the time of the interview, the interviewer would skip this home and go to the next. In the case where there were two children under 24 months, the youngest child was selected.

D. Training of Core Teams, Supervisors and Interviewers

Four core teams, twelve supervisors and twenty four interviewers from outside the project staff were selected prior to the training. Most supervisors were high school teachers (one was not a teacher, but had a diploma from secondary school). The interviewers either had diplomas from secondary school or were students in their final year or 2 of secondary school. Five days of training were given to the core teams, supervisors and interviewers by the project trainers (Oun Sivan, Phan Buntheng, Orm Bohungry and Gnet Bory).

During the first, second, third and fourth days of training the core teams, supervisors and interviewers were trained on the following: a) purpose of the survey, b) cluster identification, c) discussion of the questionnaire, d) starting point methodology and e) interviewing techniques/role plays.

On the morning of the fifth day of training, a pilot test of the survey questionnaire was conducted in a village located near the training site that was not cluster sites. Each interviewer conducted 1 or 2 interviews for the pilot test. Following the pretest, a debriefing session was held to deal with any

questions that had arisen, to correct mistakes made, and to re-emphasize important points in preparation for data gathering the following days.

E. Data Collection

The data collection was conducted over 5 days with 300 mothers who had children under two years of age in the original CSP area. Another 30 clusters with 300 mothers who had children under two years of age in the extension CSP area were interviewed. The average interview was completed in 45 minutes.

Consideration was given to the fact that many people were usually present in the home when the interview was done. In order to avoid others from interfering and influencing the mother's answers, questions were directed only to the mothers.

In order to ensure that the interviews were conducting the interviews correctly, the supervisors were present at one interview each day. Each interviewer was observed every other day.

F. Method of Data Analysis

Data entry and processing was done with Epi Info by Phan Buntheng, Training Coordinator, and Oun Sivan, CSP Program Manager. The two staff members ensured data quality by cross-checking each other's entered data and by comparing the data with hand tabulations.

The principal indicators used in this report are taken from The KPC2000+ Toolkit and the KPC2000+ Rapid Core Assessment Tool on Child Health (CATCH).

III.SURVEY RESULTS

The following answers were given for the 37 survey questions. Where baseline and mid term data is available those results are included for comparison. The total number of interviews completed for this entire survey was 300 in each area (Original and Extension Areas).

1. Do you know your WHE?

Responses	Both Areas N=600		Original Area N=300		Extension Area N=300	
	N	%	N	%	N	%
a. Yes	600	100%	300	100 %	300	100%
b. No	0	0	0	0	0	0

DEMOGRAPHIC DATA

2. Name and age of mother:
   N = 300 for each area.

The age range of mothers in the original area was 15-46 years, with a mean age of 26.59 years. The range in the extension area was 18-47 years, with a mean age of 27.13.

Level of education:

Responses	Both Areas N=600		Original N=300		Extension N=300	
	N	%	N	%	N	%
a. Never/none	176	29.3 %	74	24.7%	102	34%
b. 1-3 grades	190	31.7 %	94	31.3%	96	32%
c. 4-6 grades	163	27.2 %	93	31%	70	23.3%
d. 7+ grades	73	12.	41	13.7%	32	10.7%

Compare the mother's education to the Baseline Result:

Responses	Baseline (OA) 2002 N=300	Original Area 2007 N=300	Baseline (EA) 2002 N=300	Extension 2007 N=300
Never/none and less than one year	29%	24.7%	46.4%	34%
1-6 grades	64.1%	62.3%	48.6%	55.3%
Secondary school or higher (7+ grades)	7%	13.7%	5.3%	10.7%

3. Name, age, and sex of a youngest child:

If mother has two children under five years:

Older child: Name: age (in month): sex:

Responses		Both Areas N=94		Original Area N=47		Extension Area N=47	
		N	%	N	%	N	%
The older child under 5 years	Male	44	46.8%	27	57.4%	17	36.2%
	Female	50	51.2%	20	42.6%	30	63.8%
	Age Range	17-56		17-55		17-56	
	Mean	36.86		36.83		36	

Youngest child: Name: age (in month): sex:

(Select the youngest child under two years to be interviewed)

Responses		Both Areas N=600		OA N=300		EA N=300	
		N	%	N	%	N	%
The youngest child of the two under 5 years	Male	293	48.8%	143	47.7%	150	50%
	Female	307	51.2%	157	52.3%	150	50%
	Age Range	0 – 23 months		0 – 23 months		0 – 23 months	
	Mean	8.96 months		8.99 months		8.93 months	

Households with 2 children under the age of 5 years, number of months between the two children:

Responses	Both Areas N = 94	OA, N = 47	EA, N = 47
Birth space range between the two children under 5 years	13-49 months	13-49 months	13-49 months
Birth space less than 2 years	28 = 29.79%	20 = 42.55%	8 = 17.02%
Birth space more than 2 years between the two children under 5 years	66 = 70.21%	27 = 57.45%	39 = 82.98%

MICRONUTRIENT

4. When you were pregnant with the last child (Name), did you receive any iron tablets?

Responses	OA N=300		EA N=300	
	N	%	N	%
a. Yes	289	96.3%	284	94.7%
b. No	11	3.7%	16	5.3%

5. How many days did you take the iron tablets?

Responses	BL OA N=300 2002	MT OA 2005	OA N=300 2007		BL EA N=300 2002	MT EA 2005	EA N=300 2007	
			N	%			N	%
Receive 60+ days	38%	80.9%	256	85.3%	0.3%	76.8%	272	90.6 %

With a range	2-300 days	NA	10-200 days	2-200 days	NA	18-200 days
Mean	50 days	NA	83.48 days	10 days	NA	86 days

6. What are benefits/advantages of iron tablet? (Record all answers given)

Responses	OA N=300		EA N=300	
	N	%	N	%
a. Create a red blood cell	245	81.7%	259	86.3%
b. Prevent anemia	277	92.3%	263	87.7%
c. Be healthy	230	76.7%	242	80.7%
d. Help body grows well	71	23.7%	55	18.3%
e. Be smart	46	15.3%	41	13.7%
f. Prevent heavily bleeding during delivery	261	87%	285	95%
g. Don't know	2	0.7%	1	0.3%

7. May I test your salt for iodine?

Responses	OA 1998	BL OA N=300 2002	MT OA 2005	OA N=300		BL EA N=300 2002	MT EA 2005	EA N=300	
				N	%			N	%
a. Iodine is present	0%	55%	89.8%	259	86.3%	5.7%	89.2%	271	90.3%
b. Iodine is not present	100%	45%	10.2%	41	13.7%	94.3%	10.8%	29	9.7%

8. What are benefits/advantages of iodine salt? (Record all answers given)

Responses	OA N=300		EA N=300	
	N	%	N	%
a. Create a red blood cell	14	4.7%	10	3.3%
b. Prevent anemia	36	12%	29	9.7%
c. Be healthy	154	51.3%	149	49.7%
d. Help body grows well	89	29.7%	91	30.3%
e. Be smart	290	96.7%	288	96%
f. Prevent heavily bleeding during delivery	10	3.3%	12	4%
g. Prevent goiter	296	98.7%	293	97.7%

h. Prevent stunting	206	68.7%	214	71.3%
i. Prevent cretin	150	50%	171	57%
j. Don't know	2	0.7%	4	1.3%

9. Ask for immunization card of (Name) and record it below. Record children are 12-23 months?

Responses	BL 1998	BL N= 2002	MT N=49 2005	OA N= 110 2007		BL N= 2002	MT 2005	EA N=104 2007	
				N	%			N	%
a. No card/cost	81.8%	21%	12.2%	14	12.7%	75%	5.2%	8	7.7%
b. BCG	27.8%	83.1 %	87.8%	96	87.3%	31.5%	94.8 %	96	92.3%
c. OPV1	29.9%	82.2 %	87.8%	96	87.3%	29.9%	94.8 %	96	92.3%
d. OPV2	16.7%	78%	87.8%	94	85.5%	22.8%	94.8 %	96	92.3%
e. OPV3	11.8%	70.3 %	85.7%	93	84.5%	17.3%	92.2 %	92	88.5%
f. DPT1	30%	82.2 %	87.8%	96	87.3%	29.1%	93%	95	91.3%
g. DPT2	17.7%	78.8 %	87.8%	95	86.4%	22.8%	93%	96	92.3%
h. DPT3	11.8%	70.3 %	85.7%	94	85.5%	17.3%	90.4 %	92	88.5%
i. Measles	7.1%	76.3 %	83.7%	94	85.5%	16.5%	86.1 %	84	80.8%
j. Complete	4.5%	68.6 %	83.7%	92	83.6%	13.4%	83.5 %	82	78.8%
k. Complete before one year of age	NA	54.2 %	79.6%	90	81.8%	11.8%	80%	82	78.8%
l. Vitamin A	0.2%	45.6 %	21.5%	99 N=193	51.3%	0.6%	30.3 %	91 N=181	50.3%

10. Look at the maternal health card or other immunization cards and record the date for each TT show on the card below:

Responses	BL 1998	BL N= 2002	MT 2005	OA N= 300 2007		BL N= 2002	MT 2005	EA N=300 2007	
				N	%			N	%
a. No card/cost	96.6%	44.7	10.2%	36	12%	84%	9.2	38	12.7%
TT1	3.4%	55.3	89.8%	264	88%	16.3%	90.8	262	87.3%
TT2	1.8%	50	87.8%	258	86%	11.3%	88.6	256	85.3%
TT3	0	31.7	72.1%	190	63.3%	5%	71.1	191	63.7%
TT4	0	10.3	32%	119	39.7%	0.3%	17.8	104	34.7%
TT5	0	0	23.1%	72	24%	0	7.9	56	18.7%

Woman's TT2 for during/before pregnancy

	MT 2005	FE (OA) N=300 2007		2002	MT 2005	FE (EA) N=300 2007	
a. No card/cost	10.2%	36	12%	NA	9.2%	38	12.7%
b. TT1	76.2%	255	85%		71.4%	259	86.3%
c. TT2	71.4%	247	82.3%		61%	251	83.7%
d. TT3	31.3%	165	55%		24.1%	172	57.3%
e. TT4	22.4%	103	34.3%		9.2%	98	32.7%
f. TT5	10.2%	53	17.7%		3.2%	44	14.7%

CORD CARE

11. What instrument was used to cut the cord for (Name)?

Responses	BL N= 2002	OA N= 300 2007		BL N= 2002	EA N=300 2007	
		N	%		N	%
a. New razor blade	51%	131	43.7%	45.3 %	163	54.3%
b. Sterile scissors	0	161	53.7%	0	133	44.3%
c. Other instruments (used scissors, blade or knife)	46.3 %	3	1%	47.3 %	1	0.3%
d. Don't know	2.7%	5	1.7%	7%	3	1%

12. How did you take care of umbilical cord for (Name) when he/she was a baby?

Responses	BL 1998	BL N= 2002	MT 2005	OA N= 300 2007		BL N= 2002	MT 2005	EA N=300 2007	
				N	%			N	%
a. Clean with wine		4%	7.5%	3	1%	5.7%	14%	4	1.3%
b. Clean with water and soap		1.3%	0.7%	13	4.3%	0.3%	11.7%	9	3%
c. Iodine preparation		63.7%	73.5%	281	93.7%	5.3%	74.9%	285	95%
d. Did nothing		3.3%	15%	0		6.3%	6%	5	1.7%
e. Wasp nest poultice		17%	0.7%	4	1.3%	54.3%	0.6%	2	0.7%
f. Other ash		4%	2.7%	7	2.3%	6.3%	7%	6	2%
g. Black pepper		8.3%	0.7%	2	0.7%	20%	0.6%	0	

SANITATION, DIARRHEA, AND CHILDHOOD ILLNESS

13. Does your household have a special place for hand washing?

Responses	OA N=300		EA N=300	
	N	%	N	%
a. Yes	300	100%	300	100%
b. No	0		0	

14. Ask to see the place most often used for hand washing and circle the follow items that are present in the following answers below:

Responses	BL N= 2002	MT 2005	OA N= 300 2007		BL N= 2002	MT 2005	EA N=300 2007	
			N	%			N	%
a. Water	100%	100%	300	100%	89.8%	100%	300	100%
b. Soap	68.8%	93.7%	298	99.3%	18.4%	98.4%	298	99.3%
c. Ash or other		4.1%	5	1.7%		1.6%	8	2.7%
d.	98%	98.6%	292	97.3%	98.1%	100%	295	98.3%

Container, bucket, basin								
e. A can with a hole use for washing hand	0	0	9	3%	0	1.3%	3	1%
f. Have 3 things (a, [b or c], and [d or e])	NA	98%	300	100%	NA	98.7%	300	100%

15. When do you wash your hands? (Record all answers given)

Responses	BL N= 2002	MT 2005	OA N= 300 2007		BL N= 2002	MT 2005	EA N=300 2007	
			N	%			N	%
a. Before food preparation	77.7%	87.1%	256	85.3%	21.7%	90.2%	249	83%
b. Before eating	91%	86.4%	279	93%	63.3%	93.7%	274	91.3%
c. Before feeding children	76.7%	81%	262	87.3%	6.7%	85.7%	267	89%
d. Before going to bed	17.3%	11.6%	34	11.3%	26.7%	4.8%	23	7.7%
e. After eating	27%	36.1%	108	36%	11%	16.8%	93	31%
f. After defecation	77.7%	81%	278	92.7%	3.7%	90.2%	287	95.7%
g. After cleaning the child with defecation	NA	78.2%	266	88.7%	NA	85.4%	287	95.7%
h. After working in	21.7%	32%	36	12%	12.7%	11.1%	47	15.7%

the field or clean the house								
i. With a bath	8.7%	2%	11	3.7%	14%	5.1%	10	3.3%
j. When dirty	37%	20.4%	124	41.3%	47%	13.3%	128	42.7%
k. Don't know	0	0	0		2.7%	0	0	
l. Wash hands at 2 or more of (a,c,f,g)	94%	98%	296	98.2%	23.4%	99.4%	299	99.2%
m. Wash hands at all 4 times (a,c,f,g)	N/A	N/A	202	67.3%	N/A	N/A	212	70.7%

16. In the last two weeks, was this child sick as the following below?

Responses	BL N=300 2002	MT 2005	OA N= 300 2007		BL N= 300 2002	MT 2005	EA N=300 2007	
			N	%			N	%
a. Cough	48.7%	21.8%	125	41.7%	44	15.2%	135	45%
b. Difficult breathing/fast breathing	27.3%	7.5%	69	23%	27.7	9.2%	65	21.7%
c. Chest indrawing or nostril flaring	26%	5.4%	52	17.3%	24.7	4.4%	59	19.7%
d. High fever	51.7%	12.2%	79	26.3%	64.3	11.7%	73	24.3%
e. fever		27.2%	89	29.7%		17.8%	92	30.7%
f. Cold	NA	36.1%	150	50%	NA	26.7%	108	36%
g. Diarrhea	43.7%	12.2%	79	26.3%	46.7	16.8%	82	27.3%
h. Convulsion	0.7%	0	1	0.3%	2.3	0.3%	0	
i. None	24.7%	46.9%	87	29%	18.7	48.9%	104	34.7%
j. Dysentery	NA	0	9	3%	NA	0	4	1.3%
k. Pneumonia	NA	8.2%	70	23.3%	NA	9.7%	65	21.7%

17. (For child (Name) has pneumonia only), when child had pneumonia (difficult breathing/fast breathing), when do you seek treatment or advice from a trained health provider (hospital, health center, or private clinic)?

Responses	BL N=110 2002	MT N=12 2005	OA N= 70 2007		BL N=78 2002	MT N=29 2005	EA N= 65 2007	
			N	%			N	%
a. Immediately	29.1%	58.3%	61	87.1%	16.7%	93.1%	61	93.8%
b. 1 day (within 24 hours)	22.7%	33.3%	5	7.1%	20.5%	6.9%	2	3.1%
c. 2 days	30.9%	0%	3	4.3%	19.2%	0	0	0
d. 3 days or more days	17.3%	8.3%	1	1.4%	43.6%	0	0	0
e. Did not seek treatment from trained provider	NA	NA	0	0%	NA	NA	2	3.1%

18. (For a child had diarrhea only) when (Name) had diarrhea, what treatment, if any, did you use?

Responses	BL 1998	BL N=1 34 2002	MT N=1 8 2005	OA N= 79 2007		BL N=143 2002	MT N=53 2005	EA N=82 2007	
				N	%			N	%
a. Nothing	10.9 %	2.2%	0%	0	0	10.5%	0%	0	0
b. ORS packets	8%	24.6 %	66.7 %	34	43%	0.7%	75.5%	30	36.6%
c. Homemade sugar-salt solution	7.1%	2.2%	0%	1	1.3%	0	17%	1	1.2%
d. Cereal based ORT	30.4 %	44.7 %	66.7 %	13	16.5%	3.5%	92.5%	10	12.2%
e. Tea or other available fluid	9.6%	56.7 %	72.2 %	33	41.8%	16.8%	92.5%	29	35.4%
f. Breast milk			83.3 %	37	46.8%		96.2%	41	50%
g. Diarrhea medicine	79.4 %	64.1 %	5.6%	28	35.4%	72.7%	28.3%	19	23.2%
h. Traditional medicine/herbal			0	2	2.5%		1.9%	0	0
i. Injection	2.9%	7.4%	0	0	0%	14%	1.9%	0	0
j. Intravenous	1.4%	0	0	1	1.3%	2.1%	0%	0	0

infusion									
k. Get to health center/hospital	NA	NA	0	6	7.6%	NA	5.7%	9	11%
l.Child receiving ORT (b,c,d,e,f)	42.4%	79.9%	100%	68	86.1%	17.5%	100%	70	85.4%
m. Know how to make ORT (b,c,d,e,f)	NA	NA	NA	66	83.5%	NA	NA	68	82.9%
n. Do not know how to make ORT	NA	NA	NA	2	2.5%	NA	NA	2	2.4%

19. When (Name) was sick, was he/she offered less than usual to drink, about the same amount, or more than usual to drink?

Responses	BL N=226 2002	MT N=78 2005	OA N= 213 2007		BL N=244 2002	MT N=161 2005	EA N= 196 2007	
			N	%			N	%
a. Less than usual	0.9%	1.3%	3	1.4%	22.1%	0.6%	0	0%
b. Same amount	16.8%	0	9	4.2%	48.8%	1.9%	5	2.6%
c. More than usual	82.3%	98.7%	201	94.4%	29.1%	97.5%	191	97.4%

20. When (Name) was sick, was he/she offered less than to eat, about the same amount, or more than usual to eat?

Responses	BL N=226 2002	MT N=78 2005	OA N=213 2007		BL N=244 2002	MT N=161 2005	EA N= 196 2007	
			N	%			N	%
a. Less than usual	4.9%	1.3%	0	0	35.7%	0%	0	0%
b. Same amount	21.2%	0	9	4.2%	51.6%	0%	2	1%
c. More than	73.9%	98.7%	204	95.8%	12.7%	100%	194	99%

usual								

Sick Children who received increased fluids AND continued feeding during the illness

Responses	BL	OA N=213		BL % 2002	EA N=196	
		N	%		N	%
Gave increased fluids AND continued feeding	64.9%	201	94.4%	19.3%	191	97.4%

21. After (Name) have sick, what do you do to help her/him recover?

Responses	BL % 2002	MT % N=78 2005	OA N=213 2007		BL % 2002	MT % N=161 2005	EA N= 196 2007	
			N	%			N	%
a. Give extra food (more than usual, frequent) within two weeks	50%	67.9%	158	74.2%	5.3%	88.2%	142	72.4%
b. Give food as usual	2%	0%	4	1.9%	17.3%	0.6%	4	2%
c. Give food high caloric content (such as sugar, oil, fat)	22.3%	80.8%	127	59.6%	13.3%	81.4%	110	56.1%
d. Withheld certain food to prevent further diarrhea	2%	0%	5	2.3%	1.3%	4.3%	4	2%
e. Give soft food (such as bobor, banana, or egg)	67.3%	89.7%	101	47.4%	29.7%	87%	83	42.3%

f. Increase breastfeeding	72%	87.2%	176	82.6%	28.3%	98.8%	170	86.7%
g. Give vitamin medicine	NA	2.6%	29	13.6%	NA	1.2%	20	10.2%
h. Give green leafy vegetable	NA	0%	64	30%	NA	1.2%	60	30.6%
i. Don't know	0.7%	0%	0	0%	22%	0.6%	0	0%

22. Last time a child was sick, what were the warning signs/symptoms did you see that prompt you to seek treatment or advice immediately?

Responses	MT % N=78 2005	OA N=300 2007		MT % N=161 2005	EA N=300 2007	
		N	%		N	%
a. Lethargic	73.1%	243	81%	76.4%	263	87.7%
b. High fever	92.3%	292	97.3%	93.8%	296	98.7%
c. Difficult breathing/fast breathing	73.1%	253	84.3%	82%	254	84.7%
d. Chest drawing and nostril flaring	38.5%	184	61.3%	46%	206	68.7%
e. Vomit every thing	33.3%	89	29.7%	46.6%	101	33.7%
f. Convulsion	37.2%	59	19.7%	38.5%	84	28%
g. Not eat	7.7%	123	41%	9.3%	130	43.3%
h. Cry hard and not stop	11.5%	102	34%	3.1%	103	34.3%
i. Gave medicine but not recover	1.3%	25	8.3%	2.5%	12	4%
j. Blood in stool	28.2%	63	21%	24.2%	90	30%
k. Sign of dehydration	33.3%	61	20.3%	31.1%	99	33%
l. Prolong diarrhea	29.5%	127	42.3%	34.8%	162	54%
m. Don't know	0%	0	0%	0%	0	0%
n. Know at least 2 signs/symptoms from (a,b, [c or d] ,e,f)	100%	296	98.7%	97.5%	299	99.7%

23. When a child is sick, where do you seek treatment first?

Responses	BL % N=110 2002	OA N=300		BL % N=78 2002	EA N=300	
		N	%		N	%

a. Hospital	4.5%	3	1%	2.6	0	0
b. Health center	20%	289	96.3%	33.3	290	96.7%
c. Clinic/private MOH staff	19.1%	6	2%	16.7	6	2%
d. Pharmacy	38.2%	1	0.3%	20.5	0	0
e. Volunteer	0	0	0	0	0	0
f. TBA	0	0	0	0	0	0
g. Traditional healer	0.9%	0	0	2.6	0	0
h. Injectionist	17.3%	1	0.3%	23.1	4	1.3%
i. Relative/friend	0	0	0	1.3	0	0
j. Don't know	0	0	0	0	0	0
Suspect pneumonia with trained provider	33.1%	(Q16+Q17+Q23) N=70 children suspected pneumonia and 70 of them sought health care with trained providers (hospital, health center and clinic)	100%	35.7%	(Q16+Q17+Q23) N=65 children suspected pneumonia and 63 of them sought health care with trained providers (hospital, health center and clinic)	93.8%

24. What are the warning sings/symptoms of childhood pneumonia?

Responses	LRA#8	OA N=300 2007		LRA #8	EA N= 300 2007	
		N	%		N	%
a. Cough	71.4%	271	90.3%	61%	257	85.7%
b. Running nose	2.5%	23	7.7%	2.4%	38	12.7%
c. Stuffy nose	0	15	5%	2.1%	17	5.7%
d.Sneezing	0	6	2%	1%	7	2.3%
e. Fever	0.6%	3	1%	0.7%	5	1.7%
f. Diarrhea	0	6	2%	1%	9	3%
g. Vomiting	0	10	3.3%	9.1%	5	1.7%
h. Difficult/fast	100%	293	97.7%	99.7%	295	98.3%

breathing						
i. Chest indrawing and nostril flaring	86.3%	282	94%	95.5%	282	94%
j. Convulsion	0.6%	8	2.7%	2.4%	13	4.3%
k. High fever	97.5%	286	95.3%	96.9%	278	92.7%
l. Don't know	0	5	1.7%		2	0.7%
m. Know two of a, h, I, k	98.8%	295	98.3%	100%	297	99%

25. How do you mix ORS solution? (asked without prompting)

Responses	2007 OA N=300		2007 EA N=300	
	N	%	N	%
a. Wash hands with soap	213	71%	225	75%
b. Clean water/boiled water 1 liter	265	88.3%	272	90.7%
c. ORS one packet	264	88%	272	90.7%
d. Use for 24 hours	258	86%	264	88%
e. Don't know	35	11.7%	28	9.3%
f. Named two of (a, b, c, d)	4	1.3%	2	0.7%
g. Named three of (a, b, c, d)	52	17.3%	45	15%
h. Named four of (a, b, c, d)	209	69.7%	225	75%

26. Are you breastfeeding this child (Name)?

Responses	2007 OA N=300		2007 EA N=300	
	N	%	N	%
a. Yes	287	95.7%	294	98%
b. No	13	4.3%	6	2%

27. (If not currently breastfeeding) Did you use to breastfeed the child (Name)?

Responses	2007 OA N=13		2007 EA N=6	
	N	%	N	%
a. Yes	11	84.6%	6	100%
b. No	2	15.4%	0	0

28. After delivery, when did you breastfeed (Name) for the first time?

Responses	BL% N=300 2002	MT% N=147 2005	OA N=298 2007		BL% N=300 2002	MT% N= 2005	EA N=300 2007	
			N	%			N	%
a. During the first hour	44%	91.8%	272	91.3%	5%	89.8%	275	91.7%

delivery								
b. From 1 to 8 hours after delivery	20.3%	4.8%	17	5.7%	8.3%	6%	15	5%
c. More than 8 hours after delivery, but first day	11%	2.7%	3	1%	13%	2.5%	4	1.3%
d. Second day	13%	0.7%	2	0.7%	32.3%	1%	3	1%
e. Three days or more	11.3%	0%	4	1.3%	40.7%	0.6%	3	1%
f. Don't know	0.3%	0%	0	0%	0.6%	0%	0	0%

29. How long should mother breastfeed a child?

Responses	2007 OA N=300			2007 EA N=300		
	N	%		N	%	
a. 12 months	8	2.7%		1	0.3%	
b. 16 months	22	7.3%		13	4.3%	
c. 17 months	1	0.3%		1	0.3%	
d. 18 months	6	2%		3	1%	
e. 20 months	1	0.3%		0	0%	
f. 24 months	252	84%	87.3%	273	91%	94%
g. More than 24 months	10	3.3%		9	3%	

30. I would like to ask you about the type of fluids and food that (Name) consumed yesterday during the day and a night. How many times yesterday did he/she drink or eat them?

READ EACH OF THE FOLLOWING AND PLACE NUMBER OF TIMES IN BOX NEXT TO EACH ITEM CONSUMED.

Responses	2007 Original Area N= 300		2007 Extension Area N= 300	
	N	%	N	%
Exclusive breast feeding for a child 0-5 months	97 N=108	89.8%	117 N=119	98.3%
Children 6-9 months receiving breastmilk and complementary foods	52 N=61	85.2%	55 N=61	90.2%
a. Plain water	194	64.7%	177	59%
b. Infant formula	23	7.7%	12	4%
c. Cow's milk	18	6%	11	3.7%
d. Fruit juice	45	15%	35	11.7%
e. Any other liquids such as sugar water, tea,	139	46.3%	123	41%

soda, bobor water				
f. Can sweet condense milk	18	6%	14	4.7%
g. Any food from grain (bobor, corn, rice, bread)	487	81.2%	476	79.3%
h. Pumpkin, red or yellow sweet potatoes, carrot	403	67.2%	402	67%
i. Any other food made from root or tuber	382	63.7%	379	63.2%
j. Any green leafy vegetables	472	78.7%	473	78.8%
k. Any yellow fruit such as mango, papaya, jackfruit, durian	426	71%	427	71.2%
l. Any other fruit and vegetables	435	72.5%	403	67.2%
m. Meat, poultry, or fish	485	80.8%	473	78.8%
n. Any food made from with legumes	405	67.5%	393	65.5%
o. Any food made from with from fat or oil	461	76.8%	442	73.7%
p. Eggs with yolk, liver, or small fish with liver	451	75.2%	446	74.3%
q. Nutrition porridge or bobor kreoung	472	78.7%	435	72.5%
r. Exclusive breastfeeding for child with 4 months old N=181	15 N=17	88.2%	22 N=22	100%
s. Exclusive breastfeeding for child with 5 months old	10 N=15	66.7%	20 N=22	90.9%
t. Exclusive breastfeeding for child with 6 months old	6 N=20	30%	5 N=17	29.4%
u. Give food 4 colors (4 groups)	181 N=191	94.8%	164 N=170	96.5%
v. Give food 4 colors +5 times a day	101 N=191	52.9%	108 N=170	63.5%

31. If you your child weight is plodded it into the child growth monitoring card, and it is in the yellow color, what does it tell you about your child's health?

Responses	2007 OA N=300		2007 EA N=300	
	N	%	N	%
a. Healthy	296	98.7%	296	98.7%
b. Unhealthy or illness	1	0.3%	0	0
c. Moderate malnourished	0	0	0	0
d. Severe malnourished	0	0	0	0
e. Don't know	3	1%	4	1.3%

32. If you your child weight is plodded it into the child growth monitoring card, and it is in the orange color, what does it tell you about your child's health?

Responses	2007 OA N=300		2007 EA N=300	
	N	%	N	%
a. Healthy	0	0%	1	0.3%
b. Unhealthy or illness	84	28%	79	26.3%
c. Moderate malnourished	214	71.3%	222	74%
d. Severe malnourished	4	1.3%	1	0.3%
e. Don't know	3	1%	4	1.3%

33. If you your child weight is plodded it into the child growth monitoring card, and it is in the red color, what does it tell you about your child's health?

Responses	2007 OA N=300		2007 EA N=300	
	N	%	N	%
a. Healthy	0	0%	0	0%
b. Unhealthy or illness	30	10%	46	15.3%
c. Moderate malnourished	1	0.3%	5	1.7%
d. Severe malnourished	286	95.3%	285	95%
e. Don't know	3	1%	4	1.3%

34. If you your child weight is plodded it into the child growth monitoring card, and it is in the yellow color, what do you do?

Responses	2007 OA N=300		2007 EA N=300	
	N	%	N	%
a. Continue to give extra food	229	76.3%	167	55.7%
b. Give normal food	58	19.3%	126	42%
c. Go to the health center	2	0.7%	1	0.3%
d. Finding advice from other people for helping a child to gain weight	4	1.3%	3	1%
e. Give nutrition porridge	120	40%	80	26.7%
f. Give 4 kinds of food (protein, fruit and vegetable, fat or oil and rice)	168	56%	148	56%
g. Give multivitamin	21	7%	21	7%
h. Give less food or withheld certain food	2	0.7%	0	0%
i. Seek treatment	2	0.7%	0	0%
j. Don't know	4	1.3%	4	1.3%
k. Normal breastfeeding	3	1%	1	0.3%
l. Increase breastfeeding	36	12%	14	4.7%

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35. If you your child weight is plodded it into the child growth monitoring card, and it is in the orange color, what do you do?

Responses	2007 OA N=300		2007 EA N=300	
	N	%	N	%

a. Continue to give extra food	287	95.7%	294	98%
b. Give normal food	0	0	1	0.3%
c. Go to the health center	65	21.7%	58	19.3%
d. Finding advice from other people for helping a child to gain weight	17	5.7%	15	5%
e. Give nutrition porridge	150	50%	139	46.2%
f. Give 4 kinds of food (protein, fruit and vegetable, fat or oil and rice)	236	78.7%	237	79%
g. Give multivitamin	84	28%	52	17.3%
h. Give less food or withheld certain food	2	0.7%	0	0%
i. Seek treatment	17	5.75	7	3.3%
j. Don't know	3	1%	4	1.3%
k. Normal breastfeeding	0	0	1	0.3%
l. Increase breastfeeding	40	13.3%	18	6%

36. If you your child weight is plodded it into the child growth monitoring card, and it is in the red color, what do you do?

Responses	2007 OA N=300		2007 EA N=300	
	N	%	N	%
a. Continue to give extra food	274	91.3%	291	97%
b. Give normal food	0	0	4	1.3%
c. Go to the health center	281	93.7%	266	88.7%
d. Finding advice from other people for helping a child to gain weight	13	4.3%	14	4.7%
e. Give nutrition porridge	98	32.7%	127	42.3%
f. Give 4 kinds of food (protein, fruit and vegetable, fat or oil and rice)	249	83%	258	86%
g. Give multivitamin	97	32.3%	104	34.7%
h. Give less food or withheld certain food	2	0.7%	8	2.7%
i. Seek treatment	56	18.7%	54	18%
j. Don't know	3	1%	5	1.7%
k. Normal breastfeeding	1	0.3%	0	0%
l. Increase breastfeeding	38	12.7%	15	5%

37. May, I weigh your child (Name)?

Responses	BL N=300 2002	OA N=300		BL N=300 2002	EA N=300	
		N	%		N	%
a. Yes	97.3%	296	98.7%	99%	296	98.7%
b. No	2.7%	4	1.3%	1%	4	1.3%

Responses	BL % N=292 2002	OA N=296		BL % N=297 2002	EA N=296	
		N	%		N	%
a. Normal weight	56.2%	172	58.1%	52.9%	185	62.5%
b. -1 SD	23.3%	82	27.7%	22.2%	75	25.3%
c. -2 SD	17.5%	36	12.2%	18.2%	31	10.5%
d. -3 SD or more	3.1%	6	2%	6.7%	5	1.7%
-2 SD or more	20.5%	42	14.2%	24.2%	36	12.2%

IV. DISCUSSION/RECOMMENDATION:

In this survey, 100 % of the mothers knew who their volunteer representatives were. This result proves that the WHE was successful in interacting and training the volunteer representatives how to successfully interact with their village.

Age Distribution:

The exact age for women and children is often unknown. The approximate ages of women and children were determined with the help of a local calendar (major holidays, etc). The interviewers are trained to calculate the child's age in months by determining the number of months completed between the child's birth date and the interview date.

A birth interval of at least 24 months between the last two children born, in the Original Area is 57.45% and in the Extension Area is 82.98%. The amount of male children versus female children are about the same number in both areas, 47.7% male and 52.3% female in the Original Area, and 50% male and 50% female in the Extension Area.

The age ranges of mothers in the original area are between 15-46 years, with a mean age of 26.59 years. The age ranges in the extension area are between 18-47 years, with a mean age of 27.13 years.

Level of Education:

The education of the mothers in this survey shows a slight decrease of illiteracy over a five year period. Although the progress of raising the illiteracy rate is slow there is an increase of mothers attending seventh grade or higher from 7% at the baseline survey (2002 OA) to 13.7% at the final survey (2007 OA) and 5.3% at the baseline survey (2002 EA) to 10.7% at the final survey (2007 EA).

Graph 1: Level of Education

Micronutrient:

Results from the 2000 Cambodia National Micronutrient Survey found 50 – 80% of pregnant women to be anemic. The objective of the project was to increase iron consumption by pregnant women from 0.03% to 20% for a minimum of 60 + days.

The volunteers taught women the values of taking iron supplements, teaching them how iron would make them strong, healthy, and help avoid hemorrhage during delivery. Initially there were complaints of discomfort (constipation) which is expected to occur when taking iron tablets daily. The volunteers advised expectant mothers to change the dosage to every other day versus the daily dose prescribed but not to discontinue. Iron tablets with folic acid were readily accepted after different mothers began to share their positive experience with other villagers.

A few hurdles had to be crossed in order for the projected goal of 20% could be obtained. Iron tablets initially were not as attainable as they are now. The project staff worked diligently with sellers and suppliers in order to make the product readily available to expectant mothers. As a result the projected goal of 20% has been far exceeded.

Graph 2: Percentage of Pregnant Women Taking 60+ Iron Tablets.

Iodized salt used in the households:

Prior to the Child Survival Project iodized salt was not easily accessible to consumers. The Child Survival Project worked painstakingly with vendors and suppliers to create a demand in the community. A large majority of salt vendors began to sell iodized salt while the volunteers continued to train villages about the health benefits.

The project goal was to increase the current use of iodized salt in each household by 30%. Below, graph 3 shows the use of iodized salt increasing from the baseline of 0.0% in 1998 to 86.3% in 2007 in the original Area, and from the baseline of 5.7% in 2002 to 90.3% in 2007 in the extension Area, which far exceeds the goal of 30%.

The results are evident that the villagers accepted, understood, and took simple measures to improve health in their children during the prenatal stage as well as prevent goiter and iodine deficiency by adding iodized salt as part of their daily nutrition.

Graph 3: Percentage of Households with Iodized Salt

Childhood Immunization:

During the beginning stages of the project, villagers were reluctant to immunize children. At the household level, there was an inherent fear along with traditional practices that had to be overcome in order to conquer the apprehension of onset fever. Fever was seen as an illness and not as a side effect to treatment. Light for Life spent a considerable amount of time re-educating the villagers on accepting this side effect and treating the fever by using paracetamol, as well as compare the relative impact of fever versus disease that will occur if not immunized.

In 1998 over 81% of children aged 12 - 23 months were without immunization cards in the original area, and 75 % of children aged 12 – 23 months in the extended area in 2002. During the life of the Light for Life project, culture and traditions of the villagers have remarkably changed. As noted in Graph 4a the number of non card holders has dropped significantly. Now 12.7% of children aged 12 -23 months are without immunization cards in the original area, and 7.7% of children aged 12 -23 months in the extended area.

It was also the projects goal to increase the number of children aged 12 – 23 months to complete a series of immunizations prior to their first birth date. Remarkably the goal of having 60% of children aged 12 – 23 months to be fully immunized before the first year was far exceeded in the original area as well as the extended area. (see Graph 4b)

Graph 4a: Percentage of Children (12-23 months) with an Immunization Card

Graph 4b: Percentage of Children with Complete Immunizations by 1st Year of Age

Expectant Mother Immunization:

Towards the prevention of neonatal tetanus, mothers were encouraged to seek 2 or more doses of TT prior to childbirth. The project set a goal of 60% which remarkably was far exceeded. From this data we are shown the outstanding strides which expectant mothers are making towards having healthy babies.

Graph 5: Percentage of Women Receiving 2+ Tetanus Toxoid Injections before the Birth of Youngest Child

Hygiene and Sanitation:

A significant amount of illness found prevalent in the villages can be traced back to the lack of sanitation practices in each community. Prior to the project a fairly large amount of families were plagued with preventable illnesses such as diarrhea. However, during the awareness stages it was noted that although sanitation practices were simple and welcomed, hand washing stations and latrines were uncommon.

The project staff helped each household evaluate and plan hand washing stations that were simple and convenient to use. After hand washing stations were installed the project staff proceeded to teach sanitation skills that included hand washing prior to eating, food preparation, and after defecation of caretaker and child.

In graphs 6a and 6b the evaluation shows the goals to increase hand washing to 80% in the original area and 60% in the extended area were notably far exceeded.

Graph 6c shows a dramatic increase in the presence of soap at hand washing sites. In the original area, a baseline of 68.8% of households increased to 99.3% in the final evaluation. In the extended area, a baseline of 18.4% increased to 99.3%

Graph 6a: Hand washing Practices in Original Project Area (OA)

Graph 6b: Hand Washing Practices in the Extension Project Area (EA)

Graph 6c: Percentage of Households where Soap is Present at Common Hand Washing Site

Diarrhea Treatment:

The lack of personal hygiene is not entirely responsible for the reason a preventable illness such as diarrhea continues to plague communities. Poor food handling and eating spoiled meats, consuming rotten vegetables, rotten fruits, eating foods contaminated by rodents or other animals, and drinking expired milk or milk products contributes to this ongoing crisis. There is a great need to educate

communities on proper food handling; however this project focused on teaching and training how to treat this illness while promoting healthy sanitation practices.

The traditional belief pertaining to diarrhea and its treatment promoted severe dehydration and malnutrition. Caretakers interpreted having diarrhea as the body trying to rid itself from excess liquid and would not feed or replace body fluids loss through defecation or vomiting.

During Light for Life phase 1, the project worked intensely with caretakers on changing their management of diarrhea by using several successful educational approaches. The project staff taught caretakers to view children as flowers needing plenty of water in order to grow healthy and strong.

The project staff taught the caretakers on the proper interventions to use in order to minimize serious effects which can lead to death. Caretakers were taught to give ORT or ORS as a medicinal supplement, increase breastfeeding with age appropriate children, initiate fluid replacement with clear liquids, and continue to feed foods high in protein and potassium.

At the time of this evaluation the behavioral changes towards diarrhea management was remarkable. Graph 7 clearly documents a successful trend of administering ORT: ORS, tea or other fluids, and breastfeeding during the course of the illness. The project goal to increase the use of ORT to 80% for both areas was achieved.

In Graph 8 the evaluation results clearly prove that the educational efforts of the project staff were an outstanding success. In the original area 94.4% of the caretakers provided increased fluids and continued feeding. In the extended area 97.4% of the caretakers completed the same treatment cycle. The project goal to increase fluid replacement and continued feeding was far exceeded in both areas (OA target was 60% and EA target was 80%).

To address the matter of malnourishment the project staff worked diligently to re-educate the community and promote increased feeding during illness recovery. As for nourishment replacement 95.8% of the caretakers in the original area increased food intake and 99% of the caretakers in the extended area did the same. It is accurate to say there has been a remarkable behavioral change.

Graph 7: Percentage of Children with Diarrhea Receiving Treatment with ORT

Graph 8: Percentage of Sick Children Receiving Increased Fluids and Continued Feeding

Post illness recovery:

In addition to re-educating communities in regards to treatment applications during illness, the project staff took the opportunity to help improve post illness recovery methods. Prior to the Light for Life program the post illness management procedures were below standards and needed substantial improvement.

The baselines, however, were significantly different for the original area and the extended area. This is probably due to the impact from previous teaching which related to Integration Management Childhood Illness. In any case the project proved to be successful by meeting baseline expectations. (see Graphs 9 and 10)

Graph 9: Post illness recovery process (OA)

Graph 10: Post illness recovery process (EA)

Childhood Illness Signs and Symptoms:

The ability to identify danger signs related to sickness can significantly change ones outcome in which, delayed or left ignored could result in permanent disability or perhaps death. The project staff trained caretakers on the importance of appropriate and timely treatment seeking behavior. As a result traditional beliefs and practices were gently replaced encouraging caretakers to put more trust in their Health Care providers.

Prior to the Light of Life project, communities heavily relied on spiritualist and traditional healers to diagnose and treat illnesses. The community had an in depth misconception of the Health Clinic staff and

their treatment practices. In addition caretakers often overestimated the cost of treatment at the Health Clinic which caused a preference to continue using the economical convenience of traditional healers and spiritualist.

At the time of this evaluation 100 % of the caretakers were able to successfully identify at least two dangerous signs and or symptoms of childhood illness. Graph 11 reveals this extraordinary accomplishment; the project was more than successful in changing behavioral practices.

Graph 11: Percentage of Mothers who could Recognize Two or More Danger Signs

Pneumonia Care and Awareness:

In the area of pneumonia case management, both the original and extension areas needed a significant amount of improvement. Although caretakers recognized some of the signs and symptoms of pneumonia they often failed to seek immediate medical attention. When treatment was finally sought it was usually from non health practitioners including village phlebotomist, pharmacist, traditional healers, family members, and friends.

After successfully training caretakers on the signs and symptoms of pneumonia, the project staff modified its focus. A critical need had been identified to adjust behavioral practices. The project staff helped encourage the community to seek medical services from the local Health Center and decrease response times when seeking medical treatment.

The project focused on decreasing the medical response time from 3 days or more to immediate. Below graph 12 shows caretakers seeking medical treatment immediately from the baseline of 51.8% in 2002 to 94.2% in 2007 in the original area. The graph also shows caretakers seeking immediate medical treatment from the baseline of 37.2% in 2002 to 96.9% in 2007 in the extension area. Remarkably this surpasses the projected goal of 40%.

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Graph 12: Percentage of Caretakers Seeking Care Immediately for Symptoms of Pneumonia

Breastfeeding methods:

The practices related to breastfeeding prior to project staff intervention included discarding the expressed colostrum, giving water instead of breast milk, and introducing solid food at 2 or 3 months. It was

difficult to modify this behavior because mothers resumed working in the fields and left newborns with caretakers.

In November 2003 the project intensified it's trainings in breastfeeding and nutrition. Light for Life clearly identified five major areas of improvement needed to increase child survival at the infant stage. Mothers were encouraged to begin breastfeeding within the first hour after delivery as well as not to discard the colostrum.

The project staff promoted exclusive breastfeeding for four to six months. Caretakers were encouraged to carefully add food (*babor*) to breast milk at six months of age and continue breastfeeding until the infant reached 2 years of age. In addition, at 6 months of age caretakers were instructed to increase food intake to five times a day.

The project goal for breastfeeding methods was to increase the initiation of breastfeeding within 1 hour of delivery to 45% in the original area and 40% in the extended area. In Graph 13 the project was extraordinarily successful by increasing breastfeeding within 1 hour of delivery to 91.3% in the original area and 91.7% in the extended area.

Graph 13: Percentage of Mothers who Breastfeed within 1st hour after Most Recent Delivery

Diet and Nutrition:

The project put a focus on prenatal care encouraging expectant mothers to implement iodized salt and iron in their diets. Expectant mothers were also encouraged to eat a healthy variety of foods to ensure a healthy baby and easier delivery.

Although it is important for an expectant mother to successfully provide nourishment in the prenatal stage, it is equally as important to continue such responsibility to increase the child survival rate. Caretakers were educated on the four food colors groups, healthy liquids, and soft foods high in protein and potassium.

The nutritional habits of households have slowly increased as educational efforts continue within the community. Many of the families are making strides toward better health, however poverty stricken families find it very difficult to maintain the diets recommended.

At the time of this survey, over 90% of both the original area and extended area provided nourishment from the four food colors, as well as raised the exclusive breastfeeding rate. The community is making steady progress administering nutritional liquids on a consistent basis as well as consuming more fruits, vegetables, meats, and fats that promote healthy growth (see graph 14-17).

The community has shown remarkable interest in making strides to a healthy village. The project wonderfully succeeded in creating awareness and igniting motivation.

Graph 14: Porridge, Breastfeeding and or Food Groups given

Graph 15: Nutritional Liquids given

Graph 16: Proteins and Fats given

Graph 17: Grains/Vegetables/Fruit given

Childhood Growth Monitoring:

To compliment the training on diet and nutrition the project staff educated the community on evaluating child growth monitoring. Caretakers were counseled on how to recognize normal growth patterns and how optimal feeding patterns play a key role.

A Growth Monitoring program was implemented with the key focus on identifying at risk children and taking aggressive actions to decrease mortalities. Caretakers of malnourished children received supplemental food, VAC, iron, and de-wormed (if above 2 years of age).

Caretakers of malnourished children were invited to enroll in a Hearth cycle program which consisted of supervised supplemental feedings using the nutrient dense foods found in local villages. The programs objective was to stop mortality under five as well as prevent mortalities among future siblings.

Child weight status has slowly improved during five years of monitoring. Graph 18 shows a notable decrease in severe malnourishment which is now only 2% in the original area and 1.7% in the extended area. There is a considerable amount of progress that is yet to be made to normalize the base weight of at risk children. However, this project has succeeded in empowering its communities.

Graph 19 evaluates caretakers properly identifying the appropriate methods to treat severe malnourishment. What is most remarkable is the communities modified behavior towards seeking medical treatment from trained medical staff. This is an outstanding stride to be most appreciated.

Graph 18: Child weight status

Graph 19: Treatment for Severe Malnourishment

Appendix A: Results with Confidence Intervals

Indicator	Numerator	Denominator	Estimate	Confidence li	
IMCI					
Percentage of mothers with children age 0-23 months who know at least two signs of childhood illness that indicate the need for treatment	**299**	**300**	**99.7%**	**98.8%**	1
Proportion of mothers who give increased liquid to sick child	**191**	**196**	**97.4%**	**94.0%**	1
Proportion of mothers who increased feeding for sick child	**194**	**196**	**98.9%**	**97.0%**	1
Proportion of sick children age 0-23 months who received increased fluids and continued feeding during an illness in the past two weeks.	**191**	**196**	**97.4%**	**94.0%**	1
Diarrhea and Hygiene					
Percentage of mothers of children age 0-23 months who wash their hands with soap/ash at 2 or more of the following times: before food preparation, before feeding children, after defecation, and after attending a child who has defecated	**299**	**300**	**99.6%**	**99.0%**	1
Percentage of mothers of children age 0-23 months who wash their hands with soap/ash at ALL of the following times: before food preparation, before feeding children, after defecation, and after attending a child who has defecated	**212**	**300**	**70.7%**	**63.4%**	
Proportion of children 0-23 months with diarrhea who received ORT	**70**	**82**	**85.3%**	**74.0%**	
Proportion of mothers who know the danger signs of diarrhea	**293**	**300**	**97.7%**	**95.0%**	1
Immunization					
Percentage of children age 12-23 months who are fully vaccinated (against the five vaccine-preventable diseases) before the first birthday (children ≤12 months)	**82**	**104**	**78.8%**	**68.0%**	
Percentage of children age 9-23 months who received a measles vaccine	**84**	**104**	**80.7%**	**70.0%**	

Maternal TT: mothers of children 0-23 months who received at least 2 doses before birth of youngest child as evidenced by card	**251**	**300**	**83.6%**	**78.0%**	
Malaria: Prevention and rapid treatment					
Percentage of children age 0-23 months who slept under an insecticide treated bednet the previous night N/A					
Nutrition					
Percentage of children age 0-23 months who were breastfed within the first hour after delivery	**275**	**300**	**91.6%**	**87.0%**	
Percentage of children age 0-23 months who are underweight (-2 SD from the median wieght for age, according to the WHO/NCHS reference population)	**36**	**296**	**12.1%**	**7.0%**	
From monitoring data (not KPC): Children who maintain adequate or catch up growth after 1st Hearth session	**35**	**54**	**64.8%**	**46.9%**	
Percentage of infants age 0-5 months who were exclusively breastfed in the last 24 hours	**117**	**119**	**98.3%**	**95.0%**	1
Percentage of infants age 6-9 months receiving breast milk and complementary foods during the last 24 hours	**52**	**61**	**85.2%**	**72.6%**	
Reproductive Health					
Percentage of children age 0-23 months **in families with more than one child under 5** who were born at least 24 months after the previous surviving child	**39**	**47**	**83.0%**	**67.8%**	
Percentage of children age 0-23 months whose births were attended by skilled health personnel (delivered at health facility wit doctor, nurse, auxiliary nurse) (define for Cam)					
Percentage of mothers with children age 0-23 months who received at least two tetanus toxoid injections before the birth of their youngest child	**251**	**300**	**83.7%**	**77.8%**	
Percentage of children age 0-23 months whose umbilical cord was cut with a new razor blade or sterile scissors	**296**	**300**	**98.6%**	**97.0%**	1
Percentage of children age 0-23 months whose umbilical cord was treated with Iodine preparation	**285**	**300**	**95.0%**	**92.0%**	
Percentage of children age 0-23 months whose umbilical cord was treated with wasp nest poultice	**2**	**300**	**6.0%**	**5.0%**	
Pneumonia					

Percentage of mothers of children age 0-23 months who know at least 2 danger signs of pneumonia	**297**	**300**	**99.0%**	**97.0%**	**1**
Percentage of children age 0-23 months with rapid, difficult breathing (suspected pneumonia) treated by a trained health provider within 24 hours	**63**	**65**	**96.9%**	**91.0%**	**1**
STI's and HIV/AIDS					
Percentage of mothers of children age 0-23 months who cite at least two known ways of reducing the risk of HIV infection					

Indicator	Numerator	Denominator	Estimate	Confidence li	
IMCI					
Percentage of mothers with children age 0-23 months who know at least two signs of childhood illness that indicate the need for treatment	**299**	**300**	**99.7%**	**98.8%**	**10**
Proportion of mothers who give increased liquid to sick child	**191**	**196**	**97.4%**	**94.0%**	**10**
Proportion of mothers who increased feeding for sick child	**194**	**196**	**98.9%**	**97.0%**	**10**
Proportion of sick children age 0-23 months who received increased fluids and continued feeding during an illness in the past two weeks.	**191**	**196**	**97.4%**	**94.0%**	**10**
Diarrhea and Hygiene					
Percentage of mothers of children age 0-23 months who wash their hands with soap/ash at 2 or more of the following times: before food preparation, before feeding children, after defecation, and after attending a child who has defecated	**299**	**300**	**99.6%**	**99.0%**	**10**
Percentage of mothers of children age 0-23 months who wash their hands with soap/ash at ALL of the following times: before food preparation, before feeding children, after defecation, and after attending a child who has defecated	**212**	**300**	**70.7%**	**63.4%**	**7**
Proportion of children 0-23 months with diarrhea who received ORT	**70**	**82**	**85.3%**	**74.0%**	**9**
Proportion of mothers who know the danger signs of diarrhea	**293**	**300**	**97.7%**	**95.0%**	**10**
Immunization					
Percentage of children age 12-23 months who are fully vaccinated (against the five vaccine-preventable diseases) before the first birthday (children ≤12 months)	**82**	**104**	**78.8%**	**68.0%**	**9**

Percentage of children age 9-23 months who received a measles vaccine	**84**	**104**	**80.7%**	**70.0%**	**9**
Maternal TT: mothers of children 0-23 months who received at least 2 doses before birth of youngest child as evidenced by card	**251**	**300**	**83.6%**	**78.0%**	**9**
Malaria: Prevention and rapid treatment					
Percentage of children age 0-23 months who slept under an insecticide treated bednet the previous night N/A					
Nutrition					
Percentage of children age 0-23 months who were breastfed within the first hour after delivery	**275**	**300**	**91.6%**	**87.0%**	**9**
Percentage of children age 0-23 months who are underweight (-2 SD from the median wieght for age, according to the WHO/NCHS reference population)	**36**	**296**	**12.1%**	**7.0%**	**1**
From monitoring data (not KPC): Children who maintain adequate or catch up growth after 1st Hearth session	**35**	**54**	**64.8%**	**46.9%**	**8**
Percentage of infants age 0-5 months who were exclusively breastfed in the last 24 hours	**117**	**119**	**98.3%**	**95.0%**	**10**
Percentage of infants age 6-9 months receiving breast milk and complementary foods during the last 24 hours	**52**	**61**	**85.2%**	**72.6%**	**9**
Reproductive Health					
Percentage of children age 0-23 months **in families with more than one child under 5** who were born at least 24 months after the previous surviving child	**39**	**47**	**83.0%**	**37.4%**	**7**
Percentage of children age 0-23 months whose births were attended by skilled health personnel (delivered at health facility wit doctor, nurse, auxiliary nurse) (define for Cam)					
Percentage of mothers with children age 0-23 months who received at least two tetanus toxoid injections before the birth of their youngest child	**251**	**300**	**83.7%**	**77.8%**	**8**
Percentage of children age 0-23 months whose umbilical cord was cut with a new razor blade or sterile scissors	**296**	**300**	**98.6%**	**97.0%**	**10**
Percentage of children age 0-23 months whose umbilical cord was treated with Iodine preparation	**285**	**300**	**95.0%**	**92.0%**	**9**

Percentage of children age 0-23 months whose umbilical cord was treated with wasp nest poultice	**2**	**300**	**6.0%**	**5.0%**	
Pneumonia					
Percentage of mothers of children age 0-23 months who know at least 2 danger signs of pneumonia	**297**	**300**	**99.0%**	**97.0%**	**10**
Percentage of children age 0-23 months with rapid, difficult breathing (suspected pneumonia) treated by a trained health provider within 24 hours	**63**	**65**	**96.9%**	**91.0%**	**10**
STI's and HIV/AIDS					
Percentage of mothers of children age 0-23 months who cite at least two known ways of reducing the risk of HIV infection					

Appendix B: Survey Questionnaire

WORLD RELIEF CAMBODIA
Light for Life Child Survival Cost Extension Project
Ponhea Kriek-Dum Bai Operational Health District, Kompong Cham Province, Cambodia
Final KPC (Knowledge, Practice, and Coverage) Survey
May 2007

Informed consent: Hello, my name is_____, and I am working with World Relief. We are conducting a survey and would appreciate your participation. I would like to ask you about your health and the health of your youngest child under 5 years of age. The information you provide will be kept strictly confidential and will not be shown to other persons.

Participation in this survey is voluntary and you can choose to not to answer any question, some of the questions, or all of the questions. However, we hope that you will participate in this survey since your views are important. At this time do you want to ask me anything about the survey?

Signature of interviewer:_____Date:
(If respondent agrees to be interviewed continue the survey)

Note to interviewer: Where you see * it is remind you that all women must answer this question. It is only used where questions are skipped.

Survey number: Cluster Number:

Supervisor name: Village:

Commune: District:

1.Do you know your volunteer?

a. Yes
b. No

DEMOGRAPHIC DATA

2. Name, age of the mother:

Name: Religion:

Level of education:

a. None
b. 1-3 grades
c. 4-6 grades
d. 7 grades+

3. Name, age, and sex of a youngest child.

If mother has two children under five years:

Older child: Name: age (in month): sex:

Youngest child: Name: age (in month): sex:

(Select the youngest child under two years to be interviewed)

MICRONUTRIENT

4. When you were pregnant with the last child (Name), did you receive any iron tablets?

a. Yes
b. No go to Q#6
c. Don't know go to Q#6

5. How many days did you take the iron tablets?

a. Number of tablets_____
b. Don't know

6. What are benefits/advantages of iron tablet? (Record all answers given)

a. Create a red blood cell
b. Prevent anemia
c. Be healthy
d. Help a body grows well
e. Be smart
f. Prevent heavily bleeding during delivery
g. Don't know

h. Other_____

7. May I test your salt for iodine?
   a. Iodine is present
   b. Iodine is not present

8. What are benefits/advantages of iodine salt? (Record all answers given)
   a. Create a red blood cell
   b. Prevent anemia
   c. Be healthy
   d. Help a body grows well
   e. Be smart
   f. Prevent heavily bleeding during delivery
   g. Prevent goiter
   h. Prevent stunting
   i. Prevent Cretin
   j. Don't know
   k. Other_____

IMMUNIZATION

9. Ask for immunization card of (Name) and record it below. Record children are 12-23 months?
Age in month:_____
   a. No card/lost
   b. BCG_____
   c. OPV1_____
   d. OPV2_____
   e. OPV3_____
   f. DPT1_____
   g. DPT2_____
   h. DPT3_____
   i. Measles_____
   j. Child age over 6 months receives vitamin A-the most recent date:_____

10. Look at the maternal health card or other immunization cards and record the date for each TT show on the card below:
   a. No card/lost
   b. TT1_____
   c. TT2_____
   d. TT3_____
   e. TT4_____

f. TT5_____
g. TT6_____

CORD CARE

11. What instrument was used to cut the cord for (Name)?
    a. New razor blade
    b. Sterile scissors
    c. Other instruments (such as scissors, used blade or knife)
    d. Don't know

12. How did you take care of umbilical cord for (Name) when he/she was a baby?
    a. Clean with wine
    b. Clean with water and soap
    c. Betadine preparation
    d. Did nothing
    e. Wasp nest poultice
    f. Other ash
    g. Black pepper
    h. Other_____

SANITATION, DIARRHEA, AND CHILDHOOD ILLNESS

13. Does your household have a special place for hand washing?
    a. Yes
    b. No go to Q#15

14. Ask to see the place most often used for hand washing and circle the follow items that are present in the following answers below:
    a. Water
    b. Soap
    c. Ash or other
    d. Container, bucket, basin
    e. A can with a hole use for washing hand
    f. Nothing
    g. Other_____

15. When do you wash your hands? (Record all answers given)
    a. Before food preparation

b. Before eating
c. Before feeding children
d. Before going to bed
e. After eating
f. After defecation
g. After cleaning the child with defecation
h. After working in the field or clean the house
i. With a bath
j. When dirty
k. Don't know
l. Other_____

16. In the last two weeks, was this child sick as the following below?
a. Cough
b. Difficult breathing/fast breathing
c. Chest indrawing or nostriflaring
d. High fever
e. fever
f. Cold
g. Diarrhea
h. Convulsion
i. None go to Q#22
j. Dysentery
k. Malaria
l. Other_____
m. If a child (Name) has cough, difficult/fast breathing, chest indrawing or nostriflaring, and high fever--→pneumonia.

●17. (For child (Name) has pneumonia only), when child had pneumonia (difficult breathing/fast breathing), when do you seek treatment or advice?
a. Immediate
b. 1 day (within 24 hours)
c. 2 days
d. 3 days or more
e. Don't know

●18. (For a child had diarrhea only) when (Name) had diarrhea, what treatment, if any, did you use?
a. Nothing
b. ORS

c. Homemade sugar-salt solution
d. Cereal based ORT
e. Tea other available fluid (tea, boiled water, coconut water, root plant boiled water)
f. Breast mild
g. Diarrhea medicine
h. Injection
i. Intravenous infusion
j. Get to health center/hospital
k. Other

Could you descript how to make ORT please? (This is for mother who has a child with diarrhea and use ORT only).
……
……

19. When (Name) was sick, was he/she offered less than usual to drink, about the same amount, or more than usual to drink?
a. Less than usual
b. Same amount
c. More than usual
d. Nothing
e. Don't know

20. When (Name) was sick, was he/she offered less than to eat, about the same amount, or more than usual to eat?
a. Less than usual
b. Same amount
c. More than usual
d. Nothing
e. Don't know

21. After (Name) have sick, what do you do to help her/him recover and catch up weigh?
a. Give extra food (more than usual, frequent) within two weeks
b. Give food as usual
d. Give food high caloric content (such as sugar, oil, fat)
e. Withheld certain food to prevent further diarrhea
f. Give soft food (such as bobor, banana, or egg)

g. Increase breastfeeding
h. Give vitamin medicine
i. Give green leafy vegetable
j. Don't know
k. Other

*22. Last time a child was sick, what were the warning signs/symptoms did you see that prompt you to seek treatment or advice immediately?

a. Lethargic
b. High fever
c. Difficult breathing/fast breathing
d. Chest drawing and nostril flaring
e. Vomit every thing
f. Convulsion
g. Not eat
h. Cry hard and not stop
i. Gave medicine but not cover
j. Blood in stool
k. Sign of dehydration
l. Prolong diarrhea
m. Don't know
n. Other

23. When your child (Name…) was sick where did you go for treatment first?

a. Hospital
b. Health center
c. Clinic or private clinic run by MOH staff out off work
d. Pharmacy
e. Volunteer
f. TBA
g. Witchdoctor
h. Traditional healer
i. Village injectionist
j. Relative/friend
k. Don't know
l. Other

24. What are the warning sings/symptoms of childhood pneumonia?

a. Cough

b. Running nose
c. Stuffy nose
d. Sneezing
e. Fever
f. Diarrhea
g. Vomiting
h. Difficult breathing/fast breathing
i. Chest drawing and nostril flaring
j. Convulsion
k. High fever
l. Don't know
m. Other……

25. How do you mix/prepare ORS?
    a. Wash hands with soap
    b. One liter of clean/boiled water
    c. One package of ORS powder
    d. Stir it and drink it within 24h
    e. Don't know
    f. Other

NUTRITION

26. Are you breastfeeding (Name)?
    a. Yes
    b. No

27. Do you use to breastfeeding (Name)?
    a. Yes
    b. No

28. After delivery, when did you breastfeed (Name) for the first time?
    a. During the first hour after delivery
    b. From 1 to 8 hours after delivery
    c. More than 8 hours after delivery
    d. Second day
    e. Three days or more
    f. Don't know/don't remember

29. How long should a child has been breastfed?
    a. 12 months
    b. 16 months
    c. 24 months
    d. Other……

30. I would like to ask you about the type of fluids and food that (Name) consumed yesterday during the day and a night. How many times yesterday did he/she drink or eat them?

    a. Plain water
    b. Infant formula
    c. Cow's milk
    d. Fruit juice
    e. Any other liquids each as sugar water, tea
    f. Sweet condense milk
    g. Any food from grain (bobor, corn, rice)
    h. Pumkin, red or yellow sweet potatoes, or carrot
    i. Any other food made from roots or tubers
    j. Any green leafy vegetable
    k. Mango, papaya, jackfruit, durian
    l. Any other fruits and vegetable
    m. Meat poultry or fish
    n. Any food made from legumes
    o. Any food made with fat or oil
    p. Eggs with yolk, liver, or small fish with liver
    q. Exclusive breastfeeding 4 months
    r. Exclusive breastfeeding 6 months
    s. Give food four colors
    t. Give food 4 colors +5 times a day

31. If you your child weight is plodded it into the child growth monitoring card, and it is in the yellow color, what does it tell you about your child's health?
    a. Healthy
    b. Unhealthy or illness
    c. Moderate malnourished
    d. Severe malnourished
    e. Don't know

32. If you your child weight is plodded it into the child growth monitoring card, and it is in the orange color, what does it tell you about your child's health?

a. Healthy
b. Unhealthy or illness
c. Moderate malnourished
d. Severe malnourished
e. Don't know

33. If you your child weight is plodded it into the child growth monitoring card, and it is in the red color, what does it tell you about your child's health?

a. Healthy
b. Unhealthy or illness
c. Moderate malnourished
d. Severe malnourished
e. Don't know

34. If you your child weight is plodded it into the child growth monitoring card, and it is in the yellow color, what do you do?

a. Continue to give extra food
b. Give normal food
c. Go to the health center
d. Finding advice from other people for helping a child to gain weight
e. Give nutrition porridge
f. Give 4 kinds of food (protein, fruit and vegetable, fat or oil and rice)
g. Give multivitamin
h. Give less food or withheld certain food
i. Seek treatment
j. Don't know

35. If you your child weight is plodded it into the child growth monitoring card, and it is in the orange color, what do you do?

a. Continue to give extra food
b. Give normal food
c. Go to the health center
d. Finding advice from other people for helping a child to gain weight
e. Give nutrition porridge
f. Give 4 kinds of food (protein, fruit and vegetable, fat or oil and rice)
g. Give multivitamin

h. Give less food or withheld certain food
i. Seek treatment
j. Don't know

36. If you your child weight is plodded it into the child growth monitoring card, and it is in the yellow color, what do you do?

a. Continue to give extra food
b. Give normal food
c. Go to the health center
d. Finding advice from other people for helping a child to gain weight
e. Give nutrition porridge
f. Give 4 kinds of food (protein, fruit and vegetable, fat or oil and rice)
g. Give multivitamin
h. Give less food or withheld certain food
i. Seek treatment
j. Don't know

37. May, I weight your child (Name)?

a. Yes
b. No

Record a child's weigh in ……

Appendix C: Survey Questionnaire

Appendix D: Sampling frame for selecting cluster sites in the CSP areas

Cluster Identification For Final Evaluation Survey

Commune/#	Village Name	Population	Cumulative Population	Cluster #
1.Kandual Chrum	**Ducpor**	**485**	**485**	

2	**Tropaing Donsaung**	**763**	**1,248**	
3	**Longieng**	**283**	**1,531**	
4	**Pasa Kandual Chrum**	**657**	**2,188**	**(2018) #1**
5	**Ahndaut**	**1,206**	**3394**	
6	**Veal**	**287**	**3681**	
7	**Sbek Gu**	**806**	**4487**	
8	**Chung Ahng**	**962**	**5449**	**(4708) #2**
9	**Sway Mias**	**581**	**6030**	
10	**Sadok Sombat**	**304**	**6334**	
11	**Tropaing Prey**	**1,045**	**7379**	
12	**Toul Chey**	**104**	**7483**	**(7398) #3**
13	**Sovannacum**	**1,603**	**9086**	
14	**Manobou**	**127**	**9213**	
15	**Om Poc**	**1,040**	**10253**	**(10088) #4**
16	**Pong Tuk**	**924**	**11177**	
17	**Bos Kannow**	**288**	**11465**	
18	**Kandual Chrum**	**846**	**12311**	
19	**Makak**	**929**	**13240**	**(12778) #5**
20	**Toul Chamka**	**840**	**14080**	
21	**Goc Longieng**	**741**	**14821**	
22	**Phra Andong**	**659**	**15480**	**(15468) #6**
23	**Toul Po**	**910**	**16390**	
24	**Chey Nicom**	**1,267**	**17657**	
25	**Bot Tunlea**	**1,087**	**18744**	**(18158) #7**
26 Popel	**Joam Talok**	**594**	**19338**	
27	**Kasac**	**1,274**	**20612**	
28	**Toul Gandal**	**630**	**21242**	**(20848) #8**
29	**Tropaing Chleung**	**556**	**21798**	
30	**Steung**	**776**	**22574**	
31	**Thmey**	**2,428**	**25002**	**(23538) #9**
32	**Popel**	**1,344**	**26346**	**(26228) #10**
33	**Tropaing Thmor**	**855**	**27201**	
34	**Toul Chann**	**472**	**27673**	
35	**Sras**	**744**	**28417**	
36 Vealmalou	**Sralou Chrung**	**972**	**29389**	**(28918) #11**
37	**Dombong Ampeac**	**756**	**30145**	

38	**Granyuong**	**1,846**	**31991**	**(31608) #12**
39	**Chrap**	**556**	**32547**	
40	**Vealmalou**	**1,428**	**33975**	
41	**Gabah**	**444**	**34419**	**(34298) #13**
42	**Lor**	**1,331**	**35750**	
43	**Tropaing Kajong**	**354**	**36104**	
44	**Taheav Krom**	**875**	**36979**	
45	**Porong Leu**	**670**	**37649**	**(36988) #14**
46	**Taheav Leu**	**349**	**37998**	
47	**Po Enn #1**	**1,038**	**39036**	
48	**Po Enn #2**	**915**	**39951**	**(39678) #15**
49	**Stung**	**971**	**40922**	
50	**Kanduat**	**944**	**41866**	
51	**Kandal Kong**	**315**	**42181**	
52	**Kong Kang #3**	**1,422**	**43603**	**(42368) #16**
53	**Porong Lech**	**527**	**44130**	
54	**Po Srok**	**1,458**	**45588**	**(45058) #17**
55	**Tanal Thmai**	**610**	**46198**	
56	**Kong Kang #2**	**1,036**	**47234**	
57	**Kong Kang #1**	**1,203**	**48437**	**(47748) #18**
58 Krek	**Samagum**	**2,041**	**50478**	**(50438) #19**
59	**Maymai**	**2,648**	**53126**	
60	**Sre Tuk**	**255**	**53381**	**(53128) #20**
61	**Tropaing Soka**	**313**	**53694**	
62	**Laac**	**916**	**54610**	
63	**Taset**	**835**	**55445**	
64	**Gouv**	**393**	**55838**	**(55818) #21**
65	**Neang Noy**	**560**	**56398**	
66	**Chimon Thbong**	**1,054**	**57452**	
67	**Chimon Cheung**	**895**	**58347**	
68	**Go**	**1,137**	**59484**	**(58508) #22**
69	**Om Poc**	**1,341**	**60825**	
70	**Chipaing**	**1,956**	**62781**	**(61198) #23**
71	**Sa Om**	**2,113**	**64894**	**(63888) #24**
72	**Chidock**	**800**	**65694**	
73	**Chimon Kandal**	**1,901**	**67595**	**(66578) #25**
74	**Chimon Lech**	**998**	**68593**	
75	**Peuk**	**1,894**	**70487**	**(69268) #26**
76	**Andong Chey**	**816**	**71303**	
77	**Krek Thbong**	**1,962**	**73265**	**(71958) #27**
78	**Krek Cheung**	**1,055**	**74320**	

79	**Prey Dodung**	**350**	**74670**	**(74648) #28**
80	**Bos Lavey**	**861**	**75531**	
81	**Toul Angrong**	**744**	**76275**	
82	**Hourch Keut**	**1,110**	**77385**	**(77338) #29**
83	**Hourch Lech**	**467**	**77852**	
84	**Seray Sokha**	**2,867**	**80719**	**(80028) #30**
Total		**80,719**		

Sampling Interval = Total Population/30=80,719/30=2,690
Random Number= Random Money Bill=2,018

Cluster Identification For Final Evaluation Survey

Commune/#	Village Name	Population	Cumulative Population	Cluster #
1 Tropaing Pring	**Cham Boc**	**388**	**388**	
2	**Sreprang**	**688**	**1,076**	
3	**Chey Soksan**	**789**	**1,865**	**(1656) #1**
4	**Samacum 16**	**485**	**2,350**	
5	**Chitrun**	**590**	**2,940**	
6	**Senmanorot**	**712**	**3,652**	
7	**Tropaing Pring**	**1,254**	**4,906**	
8	**Bongheu Kleng**	**2,441**	**7,347**	**(5453) #2**
9	**Toul Sombo**	**643**	**7,990**	
10	**Sre Kok**	**1,572**	**9,562**	**(9250) #3**
11	**Sanau**	**268**	**9,830**	
12	**Brolos**	**268**	**10,198**	
13	**Kom Breus**	**872**	**11,070**	
14 Chung Cheage	**Tameak Thmey**	**1,624**	**12,694**	
15	**Tameak Chas**	**433**	**13,127**	**(13047) #4**
16	**Taream**	**1,418**	**14,545**	
17	**Goc Srolouv**	**1,624**	**16,169**	
18	**Goun Trom**	**366**	**16,535**	
19	**Stung Tathoc**	**489**	**17,024**	**(16844) #5**
20	**Cheag Keut**	**621**	**17,645**	
21	**Cheag Thom**	**1,738**	**19,383**	
22	**Cheag Cheung**	**1,368**	**20,751**	**(20641) #6**
23	**Tropaing Chrey**	**448**	**21,199**	
24	**Cha Thom**	**680**	**21,879**	
25	**Ponleak**	**2,177**	**24,056**	

26	**Cha Sawaypak**	**562**	**24,618**	**(24438) #7**
27 Tuk Chrouv	**Krosang**	**2,077**	**26,695**	
28	**Sre Veng**	**1,606**	**28,301**	**(28235) #8**
29	**Trokourn**	**749**	**29,050**	
30	**Sromor**	**1,432**	**30,482**	
31	**Phaave**	**1,887**	**32,369**	**(32032) #9**
32	**Kaley**	**889**	**33,258**	
33	**Mesor**	**876**	**34,134**	
34	**Tuk Chrove**	**1,467**	**35,601**	
35	**Trobek**	**947**	**36,548**	**(35829) #10**
36 Neang Teut	**Chom Boc**	**1,449**	**37,997**	
37	**Pong Ror**	**556**	**38,553**	
38	**Kanor**	**1,324**	**39,877**	**(39626) #11**
39	**Neang Teut**	**386**	**40,263**	
40	**Sungkhom**	**518**	**40,781**	
41 Dambai	**Dombai**	**1,915**	**42,696**	
42	**Chrey Phluk**	**209**	**42,905**	
43	**Tropaing Russey Lech**	**963**	**43,868**	**(43423) #12**
44	**Kokors**	**249**	**44,117**	
45	**Khacheay**	**665**	**44,782**	
46	**Chey Sombat**	**1,620**	**46,402**	
47	**Sway Popheas**	**460**	**46,862**	
48	**Thanol**	**627**	**47,489**	**(47220) #13**
49 Seda	**Chitheang**	**434**	**47,923**	
50	**Beng Thmey**	**1,130**	**49,053**	
51	**Dung Har**	**803**	**49,856**	
52	**Sre Khasach**	**708**	**50,564**	
53	**Thnol Khaing**	**1,113**	**51,677**	**(51017) #14**
54	**Sedasenchey Thmey**	**368**	**52,045**	
55	**Phrekchorchamreun**	**877**	**52,922**	
56	**Chong Tasauv**	**766**	**53,688**	
57	**Toul Pros**	**228**	**53,916**	
58	**Andong Longeing**	**286**	**54,202**	
59	**Takeo**	**219**	**54,421**	
60	**Sompor**	**545**	**54,966**	**(54814) #15**
61	**Gro Saing**	**675**	**55,641**	
62	**Sway Khambet**	**329**	**55,970**	
63	**Veal Touch**	**578**	**56,548**	
64	**Kampong Raing**	**1,196**	**57,744**	
65 Koksrok	**Veal Andeuk**	**803**	**58,547**	
66	**Tropaing Sro Nge**	**1,367**	**59,914**	**(58611) #16**

67	**Tropaing Chouk**	**379**	**60,293**	
68	**Seang Khaveang**	**222**	**60,515**	
69	**Tropaing Rossey Keut**	**490**	**61,005**	
70	**Kork Cha**	**1,054**	**62,059**	
71	**Chheu Teal Chrom**	**1,122**	**63,181**	**(62408) #17**
72	**Kork Srok**	**2,571**	**65,752**	
73	**Sambo Meas**	**1,372**	**67,124**	**(66205) #18**
74 Dontey	**Chhouk Sor**	**651**	**67,775**	
75	**Reul Khrom**	**670**	**68,445**	
76	**Reul Leu**	**626**	**69,071**	
77	**Angkor Khrong**	**950**	**70,021**	**(70002) #19**
78	**Rol Pha Am**	**437**	**70,458**	
79	**Po Phrek Lech**	**918**	**71,376**	
80	**Tany**	**466**	**71,842**	
81	**Somraung**	**331**	**72,173**	
82	**Sway Sokhom**	**728**	**72,901**	
83	**Bos Rokha**	**389**	**73,290**	
84	**Angkor Khrouv**	**897**	**74,187**	**(73799) #20**
85	**Po Thom**	**321**	**74,508**	
86	**Sana Kandal**	**812**	**75,320**	
87	**Bos Russey**	**307**	**75,627**	
88	**Angkor Leu**	**1,019**	**76,646**	
89	**Po Phrek Keut**	**894**	**77,540**	
90	**Sovannmealia**	**591**	**78,131**	**(77596) #21**
91	**Kork Neavia**	**207**	**78,338**	
92	**Spean Chrey**	**898**	**79,236**	
93	**Dontey**	**213**	**79,449**	
94	**Prey Thom Nub**	**895**	**80,344**	
95	**Anlong Chrey**	**1,036**	**81,380**	
96	**Thaloc Thrach**	**236**	**81,616**	**(81393) #22**
97	**Ampel**	**1,201**	**82,817**	
98	**Ta Am**	**740**	**83,557**	
99	**Tropaing Steang**	**818**	**84,375**	
100	**Bos Ty**	**482**	**84,857**	
101	**Taloc**	**727**	**85,584**	**(85190) #23**
102	**Kansom Sat**	**920**	**86,504**	
103	**Russey Chour**	**549**	**87,053**	
104	**Kanh Che**	**569**	**87,622**	
105	**Som Reuy**	**471**	**88,093**	
106	**Tuk Yung**	**756**	**88,849**	
107	**Tropaing Suntey**	**525**	**89,374**	**(88987) #24**
108	**Suntey 2**	**627**	**90,001**	
109	**Ponley**	**1,123**	**91,124**	

110	**Angkeng**	**662**	**91,786**	
111	**Opreg**	**560**	**92,346**	
112	**Dorng Kadong**	**282**	**92,628**	
113	**Stung Touch**	**1,218**	**93,846**	**(92784) #25**
114	**Suntey 1**	**704**	**94,550**	
115	**Korki**	**637**	**95,187**	
116	**khrouch**	**732**	**95,919**	
117	**Sambo**	**989**	**96,908**	**(96581) #26**
118	**Tropaing Plong 2**	**2,785**	**99,693**	
119	**Toul Sung Gue**	**908**	**100,601**	**(100378) #27**
120	**Trach Khaul**	**1,855**	**102,456**	
121	**Tropaing Plong 1**	**1,418**	**103,874**	
122	**Tropaing Pring 2**	**1,545**	**105,419**	**(104175) #28**
123	**Serisokhom**	**325**	**105,744**	
124	**Tropaing Pring 1**	**1,005**	**106,749**	
125	**Phra Phadouve**	**1,348**	**108,097**	**(107972) #29**
126	**Khabal Domrey**	**1,843**	**109,940**	
127	**Bos Cheg**	**1,160**	**111,100**	
128	**Thmey**	**560**	**111,660**	
129	**Tropaing Romseng**	**916**	**112,576**	**(111769) #30**
130	**Chrok Romdeng**	**993**	**113,569**	
131	**Thnol Kheng**	**355**	**113,924**	
Total		**113,924**		

Sampling Interval = Total Population/30=113,924/30=3797
Random Number= Random Money Bill=1656
Annex H: Evaluation Assessment methodology

The evaluation team primarily utilized focus groups and interviews to assess health workers and health facilities in the project area. The team conducted focus groups with health workers in at least 10 health clinics, asking about training, service utilization, staff roles and responsibilities, and relationship with the project and community. As well, the evaluator observed a clinic visit of a child with diarrhea in which IMCI protocols were implemented. In depth interviews were conducted with the director of the Regional Referral hospital, a drug seller, the Operational Health District Immunization Program Supervisor and the Maternal and Child Health Programs Supervisor. Of particular interest was the IMCI (and C-IMCI) training and implementation in the project area. A few members of the evaluation team also met with management staff from SCA to learn more about the health systems strengthening they are implementing in the project area. The Light for Life project staff were actively involved with the analysis of the data collected and conducted a SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis of the health facilities associated with the project (See Annex D).

Annex I: Persons Interview or Contacted

Kate Crawford, Director, Office of Public Health and Education, USAID/Cambodia
Charya Hen, Family Health Team Leader, Office of Public Health and Education, USAID/Cambodia
Tim Amstutz, Country Director, World Relief/Cambodia
Geof Bowman, Health Advisor & SPY Chief of Party, World Relief/Cambodia
Light for Life Child Survival Project Staff Members
Care Group members, Ponhea Kriek and Dombe Districts
Women of the Ponhea Kriek and Dombe Districts
Village Leaders, Ponhea Kriek and Dombe Districts
Commune Council Members, Ponhea Kriek and Dombe Districts
MOH Health Center Staff Members, Ponhea Kriek and Dombe Districts
Dr. Ek Kheang, Ponhea Kriek Referral Hospital Director
Nhean Many, Immunization Program Supervisor, Operational Health District Hospital, Ponhea Kreik-Dambae
Hun Sophal, MCH Supervisor, Operational Health District Hospital, Ponhea Kreik-Dambae
Dr. Thien Thouch, Clinical Training Coordinator, Save the Children Australia
Dr. Reginal Xavier, HSSP Manager, Save the Children Australia

Annex J: Hearth Report

WORLD RELIEF CAMBODIA
Light for Life Child Survival Cost Extension Project
Ponhea Kriek-Dumbai Operational Health District, Kampong Cham Province, Cambodia

Hearth Program in 4 villages May-June 2005

I. Objectives of Hearth Program:

The purpose of Hearth program is to rehabilitate the identified malnourished children in order to reduce the mortality and morbidity associated with malnutrition in the villages that have the most frequency child death. To help mothers identify the malnourished children and enable them to take care their children properly.

II. Selection of villages:

The villages that have the most frequency child death, according to the monthly statistic reported by village volunteers called WHE, and the percentage of malnourished children were over 30%, were selected to implement Hearth.

III. Hearth process:

Hearth is carried out in 4 villages by the project staff with helping from WHE's, village leaders and the mother's involvement. The processing of Hearth is:

1. Weight assessment of all children under three years.
2. Situational analysis of current feeding behaviors of child and food security in that villages through focus group discussion.
3. Wealth ranking exercise with community members to determine positive deviant families.
4. Conduct Positive Deviant inquiry and observation of PD homes.
5. Discover PD foods and feeding, hygiene, and other health issue related.

IV. Results Assessment:

In 4 villages, the total number of children under three years were weighted and the baseline is 155 which was found that 103 is well nourished, 47 is moderate malnourished, and 5 is severe malnourished.

The baseline assessment and result shows by village in the following below:

Village	Baseline		Result	
	N =number of malnourished children	%	N=number of malnourished children	%
Angkor Leu N=31	11	35.48%	9	29%
Kansomsat N=30	9	30%	2	6.66%
Chambok N=51	25	49%	18	35.2%
Taream N=43	14	32.5%	11	25.5%

Villages	Baseline	Result

	Number of children under three years	Number of children moderate malnourished	Number of children severe malnourished	Number of children moderate malnourished	Number of children severe malnourished
Angkor Leu	31	10	1	8	1
Kansomsat	30	9	0	2	0
Chambok	51	22	3	15	3
Taream	43	13	1	10	1

In this assessment for Hearth program in 4 villages, among 54 malnourish children who completed the *Hearth* program 35 of them (which 64.8%) achieved and sustained adequate or catch-up growth per month during at least 2 months after period of supervised feeding.

Annex K: Project Data Form