Child Survival 18 – Vietnam

Building Partner Capacity for Child Survival of Vietnamese Ethnic Populations

Dakrong and Huong Hoa Districts
Quang Tri Province, North Central Region, Vietnam

Cooperative Agreement Number: HFP-A-00-02-00044-00

1 October 2002 – 30 September 2007

FINAL EVALUATION REPORT

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December 2007

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Acronyms

ACNM	American College of Nurse Midwives
ANC	Antenatal Care
BCC	Behavior Change Communication
BF	Breastfeeding
BFSG	Breastfeeding Support Group
CDK	Clean Delivery Kit
CG	Community Guides
CHC	Commune Health Center
CM	Community Mobilization
CPFC	Committee for Population, Family and Children
CS	Child-Survival
CSC	Commune Steering Committee
DHS	District Health Services
DIP	Detailed Implementation Plan
DSC	District Steering Committee
EBF	Exclusive Breastfeeding
EOC	Emergency Obstetric Care
FE	Final Evaluation
GMP	Growth Monitoring and Promotion
HA	Health Advisor
HFA	Health Facility Assessment
HH	Huong Hoa (District)
HC-IMCI	Household and Community Integrated Management of Community Illness
HHW	Hamlet Health Worker
HIMS	Health Information Management System
HIV/AIDS	Human Immune-deficiency Syndrome/Acquired Immune Deficiency Syndrome
HO	Home Office of Save the Children
IEC	Information, Education and Communication
IMCI	Integrated Management of Childhood Illness
KPC	Knowledge, Practice, and Coverage
LU	Living University
M&E	Monitoring and Evaluation
MCH	Maternal and Child Health
MCN	Maternal Child and Newborn
MOH	Ministry of Health
MTE	Mid-term evaluation
NERP	Nutrition Education and Rehabilitation Program
NGO	Nongovernmental Organization
OR	Operations Research
PATH	Program for Appropriate Technology in Health
PC	People's Committee
PD	Positive Deviance or Positive Deviant
PHS	Provincial Health Services
RH	Reproductive Health

RR	Relative Risk (a.k.a. Prevalence Ratio)
RTCCD	Research and Training Center for Community Development
SC	Save the Children Federation, Inc.
SC/VNCO	Save the Children/Vietnam Field Office
SC/W	Save the Children/Westport Office
SEA	Southeast Asia(n)
SMS	Secondary Medical School
SNL	Saving Newborn Lives
TA	Technical Assistance
TOT	Training of Trainers
TT	Tetanus Toxoid
UNICEF	United Nations Children's Fund
WFA	Weight For Age
WHO	World Health Organization
WU	Women's Union

A. EXECUTIVE SUMMARY

Building Partner Capacity for Child Survival of Vietnamese Ethnic Minority Populations was a five-year (2002-2007) Child Survival-18 (CS-18) project conducted by Save the Children (SC) in Dakrong and Huong Hoa Districts, Quang Tri Province, North Central Region, Vietnam. The ***project site***, which expanded over the life of the project, included all 36 communes in the two primarily rural mountainous districts, with a population of 99,253 over the life of the project. The ***goal*** of the project was to achieve sustained reductions in maternal and under-five mortality. Key ***objectives*** of the project were to a) increase use of maternal, newborn and child care services, b) increase practice of key household behaviors, c) increase service delivery, d) improve service quality, and e) improve sustainability of all activities through development and further strengthening of the key project partners.

There were several remarkable accomplishments within each of the of the project intervention areas: ***Maternal and newborn care (45% effort)*** successes included the expansion of ANC outreach services for the minority women. The mean number of antenatal visits increased from 1.89 to 3.33 over life of the project. Minority women were 3.28 times more likely at endline to receive greater than three ANC visits. Members of both ethnic groups demonstrated increased knowledge of pregnancy danger signs, increased the acceptance of tetanus toxoid immunization, and increased their consumption of iron and folate supplements. A priority focus for intrapartum services was promotion of skilled birth attendance and clean delivery. The proportion of deliveries attended by a trained (skilled) birth attendant (within and outside of health facilities) increased in both districts, and among women of both majority and minority groups. Women demonstrated increased knowledge of intrapartum danger signs. They accepted and used clean delivery kits for out-of-facility deliveries. Women used four of the five personal hygiene and cord cutting and tying implements contained in the Clean Delivery Kits (CDKs) more often than they did at baseline. There was a 1.2 times greater likelihood of clean cord cutting at home deliveries after project interventions. Women delayed the timing of the first bath given to the infant (42.4% vs. 73%) in order to provide better thermal regulation. Knowledge of danger signs for the newborn increased over two-fold (overall) and among both minority and majority women. The proportion of women who received a postnatal care visit within seven days of birth increased, overall, from 26.9% to 58.7% (odds ratio 2.19) The proportion of children who were weighed after the first day of birth increased from 47.8% to 75.6%.

The project was less successful in achieving improvement in ***nutrition and micronutrients (40% effort)***. Successes included modeling of the usefulness of the Positive Deviance (PD) approach as a means of information dissemination and community mobilization. The potential impact of the PD and *Hearth* approaches for nutritional rehabilitation were constrained in these communities in general by overarching poverty levels and food insecurity and specifically by the low population density and large geographic distances, which made it difficult to sustain implementation of the methodology. There were measurable gains in knowledge of appropriate complementary feeding practices for children age 6 – 24 months. The project had a modest impact on reduction of malnutrition rates among children under age two (35.4% at baseline, 27.2 at end of project), even under the challenging circumstances of food insecurity and poverty that were faced by community residents.

Distinct successes were achieved in the promotion of both immediate and exclusive ***Breastfeeding (15% effort).*** Both majority and minority women were less likely to discard colostrums and minority women were less likely to provide prelacteal feeds. The percentage of mothers who breastfed their babies within one hour of birth increased from 74.2% at baseline to 92.2% by the end of the project. The percent of mothers who practiced exclusive breastfeeding (EBF) to the age of four months increased from 39.3% to 51.9%. Breastfeeding support groups were established in ten hamlets in Dakrong and 32 hamlets in Huong Hua district.

The project also had substantial impact on improving community capacity to respond in the event of maternal or newborn emergencies. Communities were stimulated to develop a self-styled emergency transport plan. Telephones were installed in 19 commune health centers (CHC) to enable contact with ambulance transport. Provider skills were enhanced for better provision of basic and comprehensive emergency obstetric care. Neonatal resuscitation equipment was provided for each CHC.

The community mobilization approach designed by the project used an existing organizational system, based on the prevalent political administrative structure, which people understood and respected. The community meeting was the major behavior change communication strategy. The partnership of provincial health authorities with community members in seeking solutions to problems, offers the opportunity for sustaining the gains achieved through project intervention, and a model that can be applied to addressing other pressing community needs (e.g., water, sanitation, food insecurity, and the burden of disease in children: diarrhea, respiratory infections, worms and malaria). Provincial health authorities have already committed to sustaining certain programming, and to moving forward with replication of successful interventions in other districts.

The following conclusions can be drawn, as the basis for recommendation for action at programmatic, administrative and policy levels. They also serve as *lessons learned* for the CS-18 Project.

- It is possible to change attitudes and practices regarding the place of birth, promoting facility-based birth in communities where home birth has a long history and tradition, if there is an enabling environment.
- It is possible to influence, even to change, prevalent social norms, when new knowledge is imparted in a way that empowers all family members and encourages them to take action.
- Planning for community-based interventions into food insecurity and nutritional rehabilitation should give careful consideration to community characteristics prior to the selection of sites for conducting such programming. Conditions such as community population size and food insecurity will work against effectiveness of this particular approach.
- Multi-sectoral and multi-partnered programming should be considered for implementation in communities that have high indicators of poverty and community constraint (e.g., water, sanitation, disease prevalence), so that the interactive effects of multi-lateral interventions might generate greater community gain and impact.

B. Assessment of Results and Impact of the Project

B.1. Summary Chart

Table 1 presents the objectives of the CS-18 Project by objective. It indicates the target figures, revised at the time that the Detailed Implementation Plan (DIP) was prepared, based on a Knowledge, Practice and Coverage (KPC) survey data and other findings, the baseline figure obtained from these same sources (2003), and the endline data (June, July, 2007).

Table 2 presents the Rapid Catch indicators that were included in the KPC survey. Table 3 presents the Rapid Catch data by district.

Table 1: Project Indicators, Targets and Comparative Results

Objectives / Indicator	Revised Target (%)	Baseline Figure (%)	Endline Figure (%)	Prevalence Ratio (2007/2003)	Data Source
Improved health status of children under 5					
1. Decrease of child malnutrition (0-24 months) as measured by < 2 standard deviations below reference median weight-for-age.	10	35.4	27.2	0.77 (0.62-0.94)*	HHS◊
Increased use of health care services					
1. % of pregnant women who received two doses of tetanus toxoid vaccine	80	86.6 §	94.0	1.09 (1.03-1.15)*	HHS
2. % of mothers who used 100 antenatal care (ANC) iron-folate tablets	70	14.0 §	77.7	5.57 (4.32-7.17)*	HHS
3. % of mothers and newborns who received postnatal care within the first week of birth**	50	26.9	58.7	2.19 (1.82-2.62)*	HHS
4. % of newborns who were weighed within 24 hours of birth	70	47.8 §	75.6	1.58 (1.41-1.78)*	HHS
5. % of mothers who received postpartum Vitamin A supplement within the first month of delivery	50	25.6	68.4	2.68 (2.23-3.21)*	HHS
Increased practice of key household health behaviors					
1. % of home deliveries with clean umbilical cord cutting	70	46.2 §	57.0	1.23 (1.00-1.52)	HHS

Objectives Indicator	Revised Target (%)	Baseline Figure (%)	Endline Figure (%)	Prevalence Ratio (2007/2003)	Data Source
2. % of mother who breastfed their babies within one hour of birth	80	74.2	92.2	1.24 (1.16-1.32)*	HHS
3. % of mothers who practiced exclusive breastfeeding of their children at the age of four months	50	39.3 §	51.9	1.32 (0.95-1.84)*	HHS
4. % of mothers who practice recommended complementary feeding (frequency, variety, onset)		~~71~~ §		**The several components of this complex indicator were analyzed separately.**	
Sub-indicators					
4.a. >= 2 meals/day for children 6-9 months	N/A	94.4	100.0	1.06 (0.99-1.13)	HHS
4.b. >= 3 meals/day for children 10-12 months	N/A	70.7	82.1	1.16 (0.93-1.45)	HHS
4.c. % of mothers who fed their children (6-23 months) with four food groups in last 24 hours	N/A	16.4	37.1	2.26 (1.67-3.07)*	HHS
Increased service accessibility					
1. % of Communes with emergency transport	30	0	100	N/A	Endline qualitative survey
Improved service quality					
1. % Commune Health Center (CHC) staff using supervision tools	80	0	95	N/A	Super-vision tool
2. % CHC staff and Hamlet Health Workers (HHW) using job aids	80	0	100	N/A	Super-vision tool
Improved Sustainability					
1. % Newborns registered	70	Unknown	DROPPED		
2. % Communes using data for planning	80	0	100	N/A	Endline qualitative survey
3. Provincial Health Service (PHS) adopting Project approaches to other districts (has plan to expand)	Written plan	0	Yes	N/A	Written plan
4. Communes adopting CS-18 approaches	80	0	100	N/A	Endline qualitative

Objectives Indicator	Revised Target (%)	Baseline Figure (%)	Endline Figure (%)	Prevalence Ratio (2007/2003)	Data Source
					survey
5. Research and Training Center for Community Development (RTCCD) taking over Living University (LU)		N/A		DROPPED	
6. Two working papers produced	N =2	N = 0	N =3	N/A	Project documents

§ The baseline figures reported in the DIP are different than those reported in this table. Corrections to baseline figures were made in 2007, when data were reanalyzed for the baseline/endline comparison study.
◊ HHS: household survey
*p< 0.05
**Only include postpartum home visit
N/A = Not applicable or Not Available

Table 2: Rapid CATCH Indicators

Indicator	2003 (%)	2007 (%)	Prevalence ratio (2007/2003)
1. Underweight	35.4	27.2	0.77 (0.62-0.94)*
2. Birth spacing	**	**	
3.Skilled birth attendant	55.5 (400)	67.9 (396)	1.22 (1.10-1.37)*
4. TT2	86.6 §	94.0	1.09 (1.03-1.15)*
5. Exclusive breastfeeding (EBF) (≤ 4 mos)	39.3 §	51.9	1.32 (0.95-1.84)*
6. Complementary Feeding and Breastfeeding (BF) (6-9 mos)	100.0	93.0	0.93 (0.87-1.00)
7. Full vaccination	***	***	
8. Measles	***	***	
9. Bednet	**	**	
10. Child danger signs	58.4 §	76.5	1.31 (1.19-1.45)*
11. Illness diet	**	**	
12. HIV risk reduction	**	**	
12. Hand washing	**	**	

§ The baseline figures reported in the DIP are different than those reported in this table. Corrections to baseline figures were made in 2007, when data were reanalyzed for the baseline/endline comparison study.

* p< 0.05
** Not asked
*** Not asked correctly

Table 3: Rapid CATCH Indicators by District

Indicator	Dakrong			Huong Hoa		
	2003	2007	Prevalence Ratio (2007/2003)	2003	2007	Prevalence Ratio (2007/2003)
1. Underweight	47.5	40.2	0.85 (0.68-1.06)	31.0	22.7	0.73 (0.53-1.02)
2. Birth spacing	**	**		**	**	
3. Skilled birth attendant	40.5	52.8	1.30 (1.05-1.61)*	61.0	73.2	1.20 (1.04-1.38)*
4. TT2	84.3	93.6	1.11 (1.02-1.21)*	87.4	93.9	1.08 (0.99-1.16)
5. EBF (≤ 4 mos)	19.4	40.0	2.06 (0.96-4.42)	44.7	56.1	1.26 (0.83-1.91)
6. Complementary Feeding and Breastfeeding (6-9 mos)	100.0	94.7	0.95 (0.88-1.02)	100.0	92.0	0.92 (0.82-1.03)
7. Full vaccination	***	***		***	***	
8. Measles	***	***		***	***	
9. Bednet	**	**		**	**	
10. Child danger signs	60.0	81.9	1.37 (1.20-1.56)*	57.8	74.6	1.29 (1.12-1.49)*
11. Illness diet	**	**		**	**	
12. HIV risk reduction	**	**		**	**	
13. Hand washing	**	**		**	**	

* $p < 0.05$

** Not asked

*** Not asked correctly

B.2. Technical Approach

2.a. Project Overview

Building Partner Capacity for Child Survival of Vietnamese Ethnic Minority Populations was a five-year (2002-2007) Child Survival-18 (CS-18) project conducted by Save the Children (SC) in Dakrong and Huong Hoa Districts, Quang Tri Province, North Central Region, Vietnam. The ***project site*** predicated in the proposal and in the DIP included all 34 communes in the two rural mountainous districts, with a population, at baseline, of 87,070, including 13,931 children under five years of age and 20,897 women of reproductive age. The project scope expanded to include a total of 36 communes over the life of the project, due to government redistricting. The population of these communities increased to 99,253 over the life of the project. Some of the service sites are geographically located in urban/peri-urban areas (15.7%); the majority (84.3%) are in rural settings. A community profile is provided in Appendix F of this report.

The ***goal*** of the project was to achieve sustained reductions in maternal and under-five mortality. Key ***objectives*** of the project were to:

- Increase use of maternal, newborn and child care services;
- Increase practice of key household behaviors;
- Increase service delivery;
- Improve service quality; and
- Improve sustainability of all activities through development and further strengthening of the key project partners.

The ***operational targets*** of the project were revised following baseline studies. The targets are presented in section 1.

Major project ***intervention packages*** were maternal and newborn care (45%), nutrition and micronutrients (40%) and breastfeeding (15%). Key ***strategies*** included:

- Community mobilization for better maternal and newborn care through a two-pronged approach tailored to the two main groups: minority and Kinh majority;
- The Positive Deviance (PD) and Hearth approaches for sustainable community-based rehabilitation and prevention of malnutrition;
- The PD approach pilot-tested for improved maternal and newborn care;
- Breastfeeding support groups that incorporated PD and other active learning methods; and
- Behavior change approaches for ethnic populations that have both cultural and linguistic barriers to health care access.

Two additional strategies were originally intended, but were redesigned during the life of the project:

- Establishment of a Living University (LU) method for joint health system strengthening and community demand mobilization; and
- Strengthening the capacity of a local nongovernmental organization (NGO), the Regional Training Center for Community Development (RTCCD) to take over the LU to sustain and scale up successful experiences.

Key project ***partners*** included the Ministry of Health (MOH), Women's Union (WU), and Committee for Population, Family and Children (CPFC) at the province level in Dong Ha (the provincial capital), at the district level in Dakrong and Huong Hoa Districts, and at the commune level. The main clinical training activities were implemented through Quang Tri Secondary Medical School (SMS) trainers, province health trainers and district health trainers, who in turn trained midwives in maternal and newborn care, following the MOH guidelines for each service level. SC also collaborated with Hue Medical School and Hanoi Secondary Medical School to provide clinical training for doctors on basic and comprehensive emergency obstetric care at Quang Tri Province Hospital.

The key partners in strategies designed to improve household practices were the individuals responsible for implementing behavior change communication (BCC) activities at the village level, i.e., the Community Guides (CG). CGs included hamlet health workers (HHW), staff from the Women's Union and from the CPFC. The district and province WU, CPFC and district health staff provided training and supervision for community meetings at each village.

The NGO, PATH (Program for Appropriate Technology in Health), was a key partner in development of BCC materials and approaches. A local NGO, The Research and Training Center for Community Development (RTCCD), was a training partner in the first two years of the project.

Table 4. Target Beneficiaries

Beneficiary Type	Number
Infants (0-11 months)	2,450
Children age 12-23 months	2,896
Children age 24-59 months	8.585
Total of children age 0 – 59 months	13,931
Women of reproductive age (15-49)	20,897

2.b. Progress by Intervention Area

A final evaluation of this project was conducted in the third quarter of the fifth project year. Evaluation team members, the evaluation methodology, and related details are described in Appendix A and Appendices C through F. Results of the KPC analysis, which form the basis of the results reported in this section of the report, are presented as Appendix B.

The project targeted all pregnant women, new mothers, newborns, and their caregivers and families to improve maternal and newborn care, and improve maternal, newborn and child nutrition. The promotion of key household behaviors and the use of key health services was the centerpiece or strategic objective of the project. Concurrently, the project targeted CHC and District Health Service (DHS) health staff to improve maternal and child health services at health facilities and at outreach services.

A two-pronged approach was developed, to recognize the distinct differences in cultural beliefs and usual practices between the Kinh majority and the two ethnic minority groups (Pakoh and Van Kieu) who were beneficiaries of the project. Members of the Kinh group are more likely to

be literate and were found (through informed inquiry, KPC and operations research [OR] studies) to be already likely to seek facility-based health care services. The aim for the Kinh group was to provide further information, "updating" their knowledge on best self-care practices.

The minority population is less likely to be literate, tend to live in geographically remote settings, and are socio-economically more disadvantaged. They also have cultural beliefs and traditions that provide a basis for their custom to give birth alone and to be less likely to utilize existing health services. Therefore the approach to the minority population involved education for better practice, combined with outreach efforts that would promote better outcomes when birth was conducted in the home settings.

The resounding theme expressed by final evaluation (FE) informants was that the time of intensive program implementation was too short (four separate 1 year phases, each for about one quarter of the communes). They noted that everyone could have benefited by more time to learn, apply, and practice what they had learned in order to generate behavior change. Nevertheless, findings from the endline survey (Appendix B, Table 5) demonstrate improvement in reported practices for *selected* behaviors in Phases 1 and 2 compared to Phases 3 and 4, indicating that some learning was sustained over time (for communes served in the first two phases) and that beneficiaries served in the latter two phases did, in fact, have sufficient elapsed time to demonstrate behavior change on selected, targeted, activities. Ethnic differences do confound these analyses (Please see additional discussion in the KPC narrative, Appendix B).

Intervention 1: Maternal and Newborn care (45% effort)

Antenatal care

The project focused on five essential elements of maternal and neonatal care. The antenatal care (ANC) component of the project involved promotion of the use of ANC services, and expansion (at already high levels among the Kinh) and the implementation and expansion of ANC outreach services for the minority women. The MOH has defined the essential elements of ANC services for the country. These closely reflect World Health Organization (WHO) recommended standards.

Women expressed great enthusiasm and support for the outreach services. The mean number of antenatal visits increased from 1.89 to 3.33 over life of the project. (Appendix B, Table 2). This increase in mean value was demonstrated among both the majority and minority population groups, and by residents of both districts, at statistically significant levels. Minority women were 3.28 times more likely at endline to receive greater than three ANC visits. Women (all) were also significantly more likely to know danger signs of pregnancy, in fact, overall, more than three times as likely to know at least two danger signs and nine times as likely to know at least three danger signs (Table 2). Women in both ethnic groups demonstrated increased knowledge, but the increase among minority women was particularly remarkable (Table 4).

Only a very few interview respondents declined to endorse the importance of ANC services

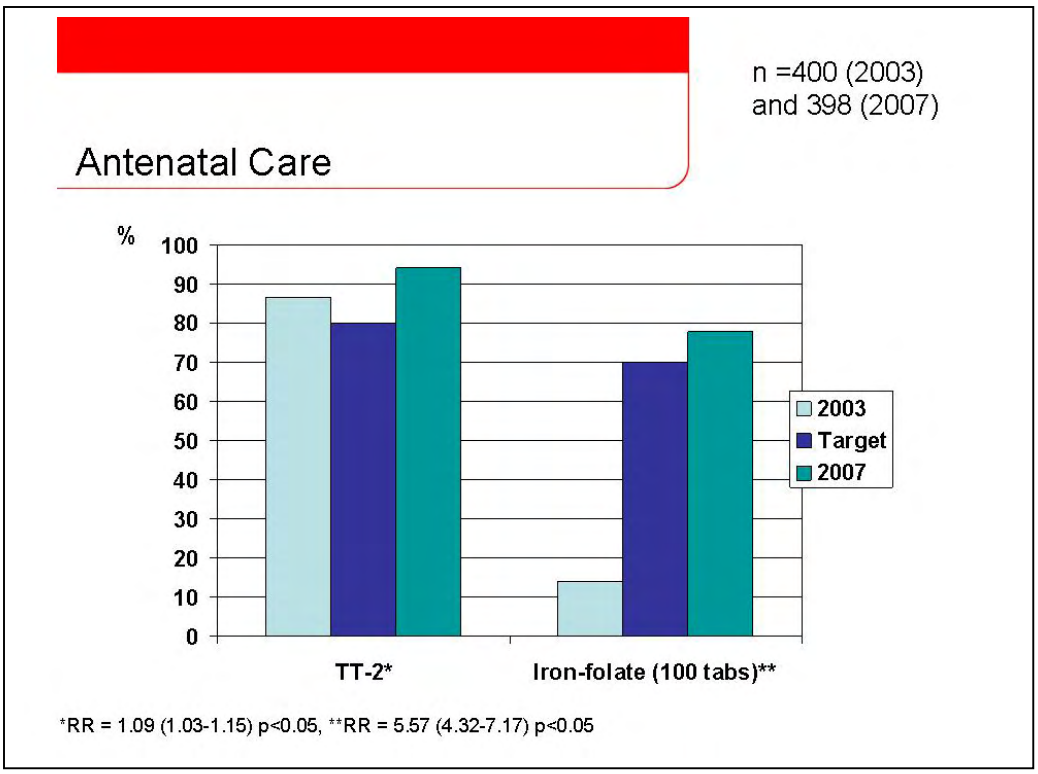
I was healthy all through the pregnancy. I didn't need to get any ANC care. [1]

Women who participated in the interviews indicated that they did not necessarily seek this care at any point earlier in the pregnancy than they had with previous pregnancies, nor did they express an understanding of the value of *early* prenatal care. Rather, most stated that they took advantage of the time of convenience (e.g., at the next outreach visit). Some took advantage of the availability of pregnancy testing at the CHC to confirm their suspicion. A very few women noted that newly married women might actually prefer to delay seeking confirmation of a pregnancy, if they had not been abstinent or faithful to their husband prior to marriage.

Two project indicators were focused on components of the ANC service delivery package. There was a statistically significant increase over baseline values for both indicators. DHS staff noted that the acceptance of tetanus toxoid immunization was likely much higher than documented, but that the present ANC card does not accommodate recording more than two injections.

The project subsidized the purchase of iron/folate tablets (matching funds were used), but the Government of Vietnam has committed to assuming this financial responsibility (50% in 2007 and 100% in 2008), and has charged CHC to distribute the supplements. Even given the already high baseline figure, these two activities can certainly be considered successes of this project.

Figure 1. Antenatal Care



[1] The reader should note that all quotations are simply paraphrases of the translation of the conversation. However, the substantial essence of each comment was verified by at least two other team members who had received an independent translation of the conversation.

Skilled attendance at delivery

The project's priority focus was on clean delivery – whether at the worksite (e.g., field, woods), at home or in a facility. The project also advocated that commune midwives be summoned to attend home deliveries, if that venue was the mother's choice, and if time and distance and method of transportation supported this. The vast majority of Kinh women delivered in facilities, where skilled attendance is implied. The proportion of deliveries attended by a trained (skilled) birth attendant (within and outside of health facilities) increased from 40.5% to 52.8% in Dakrong and from 61.0% to 73.2% in Huong Hoa. The overall proportion of skilled attendance at birth increased from 55.5% to 67.9%. The odds ratio indicated that, overall, women were 1.2 times more likely to have a skilled attendant present at their birth (Table 2).

There are severe constraints to home services in these communities. The midwife most often has to walk to ANC and deliveries; Community Guides have to walk to meetings and home visits. The project was unable to reach all women and there were still constraints to receiving skilled birth attendance or birthing at facilities among women in the very remote hamlets. Women in one remote commune visited by the FE team could recall three deaths from postpartum hemorrhage that had occurred just prior to and/or during the project timeframe.

These statistics would seem to indicate, nevertheless, (a *lesson learned*) that it is possible to change attitudes and practices regarding the place of birth, promoting facility-based birth in communities where home birth has a long history and tradition, if there is an enabling environment. The factors of fees and costs (in this case, there are none for normal deliveries), access to the facility (in this case, now available on a 24-hour basis, but not necessarily accessible in terms of geography and transportation) were factors that served to facilitate the trend of minority women to select facility delivery. Comments from women who had chosen to deliver their next child at the facility noted that they appreciated the companionship (of midwife and of family), the opportunity to "rest" after delivery, and to receive medicines if they needed them.

Additional aspects of an enabling environment that were not adequately considered or addressed by the project include the accommodation of cultural traditions and birth practices within the facility[2] (including accommodation of alternative birth positions, should that be the woman's choice), and the issue of language. Provincial and district health administrators admitted that they had conducted all training in the Kinh language, which is the language spoken by all of the health providers. Administrators were unable to document whether any of the CHC spoke a

[2] The team leader (a midwife) questioned women about the change in birth position inherent in the facilities (lying flat on the back with legs in stirrups, rather than squatting), as this is both a physiological and dramatic cultural change. One woman stated that she had helped a neighbor with a home birth (this neighbor was also present at the interview); she demonstrated how she had helped to provide upright back support for the woman. A third woman spoke of her own birth in which she was experiencing a delay in fetal descent. The midwife asked her to walk and to squat. All three of these women said the squatting position was hard on their legs, knees and back, and that they preferred the back-lying position. Nevertheless, midwives stated that they had learned (originally) and been retrained (by the project) to conduct deliveries on the delivery table, and that they were not accustomed or prepared to accommodate any other style.

minority language. The concern was expressed that some CHC staff might not be able to give effective counseling services to women who do not understand the majority language, if the staff member is unable to speak the minority language.

The project provided refresher training for district and commune midwives in the elements of basic emergency obstetric care. This included: 1) administration of oxytocin for the prevention (active management of the third stage of labor) or control of postpartum hemorrhage; 2) administration of antibiotics for presumed infection; and 3) administration of anticonvulsants in the event of eclampsia. The DIP indicates that midwives would also be taught the technique of manual removal of the placenta, but that topic was omitted from the training agenda in light of the constraints of district facilities, which are not equipped to handle emergency obstetric events. (Please see a fuller discussion of a particular concern about this issue in Section C.2.)

Birth preparedness and home based care

Birth preparedness was a particularly important health promotion activity for the minority community. Women were educated about the danger signs at delivery. Endline survey data indicate that, overall, women were more than three to almost nine times more likely to know at least two or three of these danger signs (Table 2). This increased awareness was also demonstrated by ethnicity (Table 4). It is of particular note that the increase in knowledge of at least two danger signs was sustained for women served in the first project phases (Table 5).

Nevertheless, more than one-third of the women continued to choose home delivery. Therefore, the CS-18 strategy of educating women about the importance of clean delivery and preparation for emergencies was particularly wise, and also effective. The project supplied clean delivery kits (CDK) that were distributed by commune midwives and the Community Guide network to all pregnant women. Project staff noted that the content of these kits was not standard [3], and that they led to some confusion among mothers who had compared their experiences. MOH personnel have committed to funding the purchase (100%), and promoting the distribution of CDKs in 2008. This indicates *achievement to scale* for this particular intervention.

KPC data indicates that these kits were distributed in increased numbers over the life of the project. Women were 1.44 times as likely to have received a kit at endline, and also significantly more likely to use it in non-facility births (prevalence ratio 1.49) (Table 2). Increased use of the CDKs was true for both majority and minority women (Table 4). The overall proportions of clean deliveries, whether facility- or home-based, increased from 69.5% to 85.8% (a statistically significant prevalence ratio of 1.23). The increased proportion of clean delivery was documented within both districts, and within both ethnic groups.

The women provided a great deal of detail about the ways in which their behaviors had changed when delivering in the home setting. They stated that the birth event was now given some

[3] The CDK provided by the project had five components (plastic sheet, soap, thread, bandage, and razor blade). The contents of this kit had been discussed with and received approval from the PHS and DHS administrators. However, UNFPA was also distributing CDKs via a population program implemented in some of the mountainous provinces. This kit had gloves and alcohol – not contained in the CS-18 kit – but lacked a plastic sheet for covering the floor that was a component of the CS-18 kit.)

prominence (a place in the main house or in a small room in the house, rather than in a hut or another setting separate from the house). Women could spread out the birth mat. Other women or family members were welcome to attend and assist. There was a greater willingness to accept attendance (including skilled attendance) at the time of birth.

Men stated that they were more likely to stay in the vicinity of the home, prepared to respond to a call for help. Each home, or at least each village, had procured a hammock in which the woman could be carried to the health facility (by hand or by bicycle), where the midwife could provide assessment and possible treatment or intervention, and the district ambulance could be summoned to take them to district or province hospital. The village hammock was stored in the home of the village headman and everyone knew where to find it.

Many women and men noted that they had set aside money for use in the event of an emergency. When asked what previous practices had been when an emergency arose, several respondents (in different hamlets and districts) responded

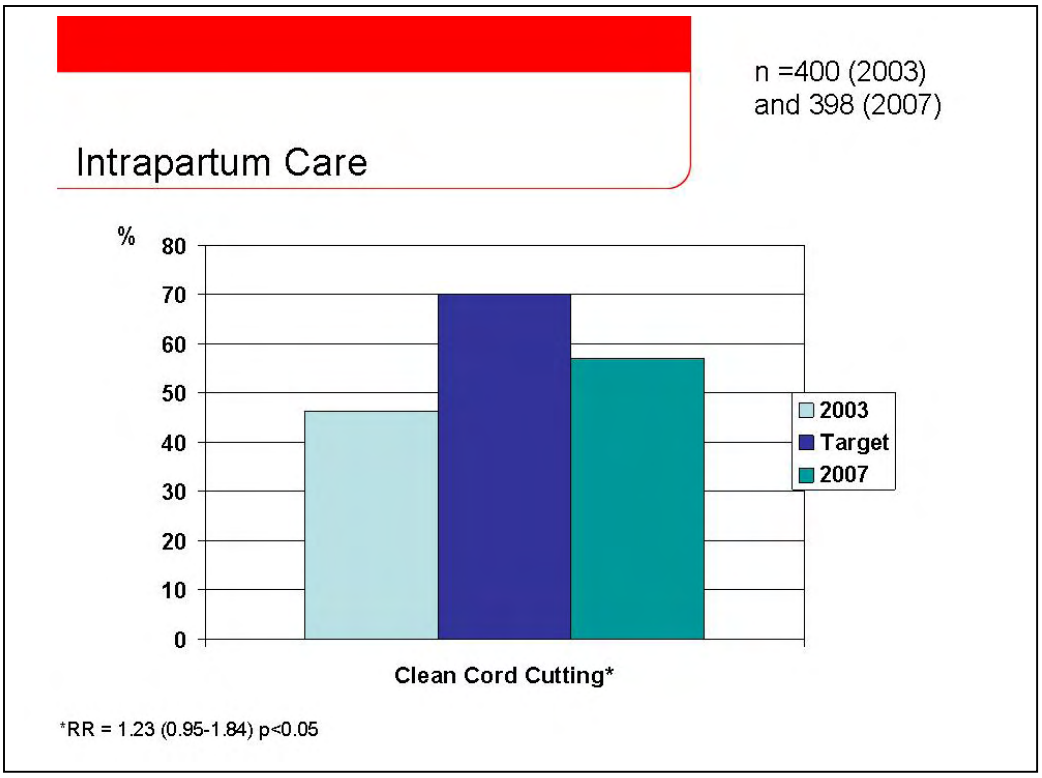
….we used to pray…

Women's self- and newborn care-taking practices had also changed. Women used four of the five personal hygiene and cord cutting and tying implements contained in the CDK more often than they did at baseline (Table 2). Minority women, and specifically those in Huong Hoa District, accounted for the single exception (use of the cord bandage declined among the minority women) (Table 4). There is no clear explanation for this finding.

Women described the way in which they dried and wrapped their infants. Women said that previous practice was to leave the newborn un-dried and un-wrapped until the placenta was out and the cord had been cut, due to a fear that the placenta would be withdrawn into the body, and compress the heart. The priority attention given to the placenta necessarily delayed attention that was paid to the infant. Women's new learning about the importance of thermal regulation changed the focus of their attention to the warming needs of the infant.

Project participants also delayed the timing of the first bath given to the infant (42.4% vs. 72.7%) in order to provide better thermal regulation (Table 2). One project indicator is relevant. There was a 1.2 times greater likelihood of clean cord cutting at home deliveries after project interventions, although this difference was not statistically significant.

Figure 2. Intrapartum Care-% of Home Deliveries with Clean Cord Cutting



Grandmothers and older women who participated in the interviews expressed very strong support for the "new ways", even though many were dramatically different from their own experiences. They said that new knowledge is a good thing, and new practices should be adopted. A grandmother observed:

"I had to deliver my baby in a dirty cottage. I wish I had the knowledge that girls now have!"

Men also spoke of changed opinions and attitudes concerning what should be expected of "women's work" around the time of childbirth.

"…I must protect my wife because this protects my child…"

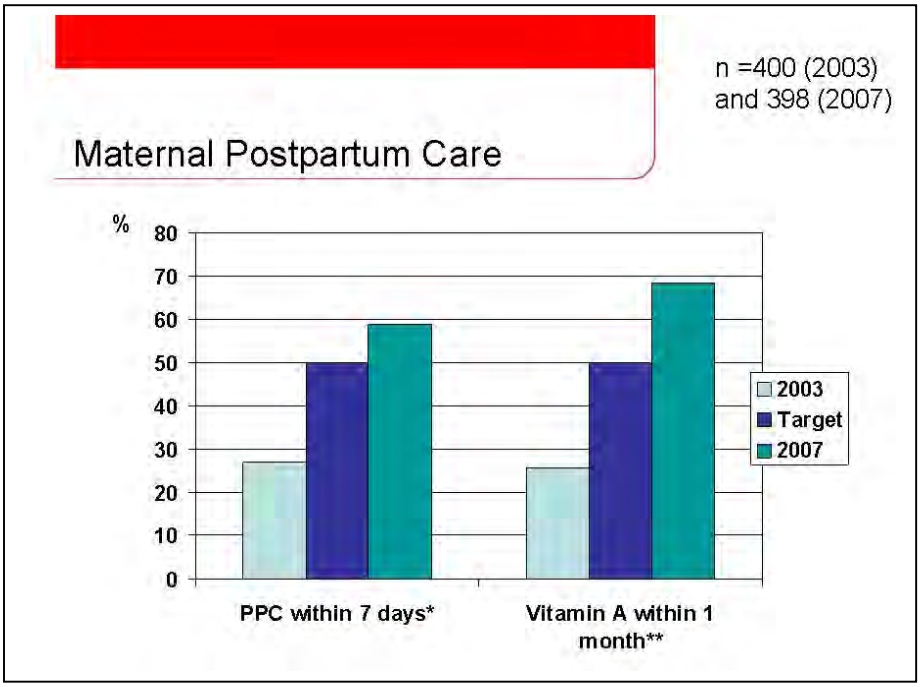
Postpartum care

The project promoted the provision of a postpartum care visit within 24 hours (preferably six hours) after birth. It was known that this would be challenging to accomplish, particularly for women who gave birth at home, and whose lived at some distance from the health facility. (The midwife had to be notified of the birth, and this itself took time.) The topics of danger signs during labor and after delivery; postpartum care for the newborn; newborn resuscitation; and danger signs for mother and newborn after delivery were among the maternal newborn care messages conveyed during community meetings and at ANC visits. These were also depicted on the information, education and communication (IEC) materials that were given to project beneficiaries. Women were almost three times more likely to know at least two postpartum

danger signs and over 13 times more likely to know at least two postpartum danger signs (Table 2). This increase in awareness was consistent when assessed by ethnicity (Table 4).

The proportion of women who received a postnatal care visit within seven days of birth increased, overall, from 26.9% to 58.7% (odds ratio 2.19, and statistically significant at $p<.05$) (Appendix B, Table 2). The proportion of women who received a Vitamin A capsule (commonly distributed at the time of the postpartum visit) increased from 25.6% to 68.4% (odds ratio 2.68 and statistically significant) (Table 2). The changes in both of these indicators are also noted by ethnicity (Table 4). These behaviors were both selected as project outcome indicators.

Figure 3. Maternal Postpartum Care

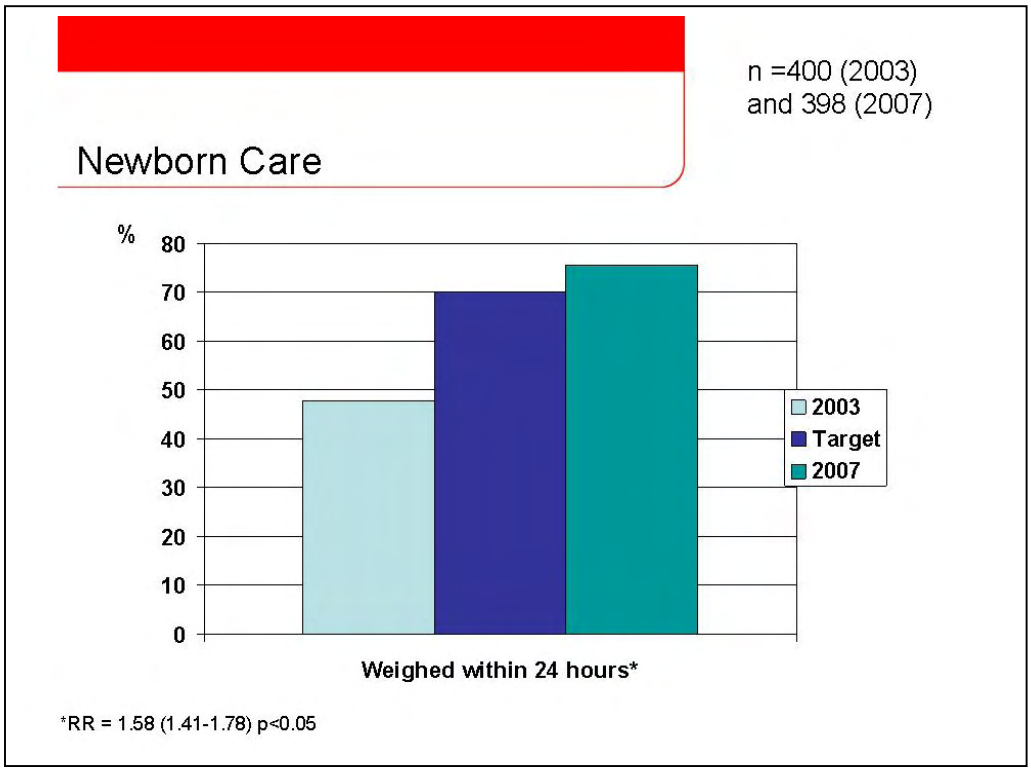


Newborn care

The project emphasis was on birth weighing, the recognition of danger signs, and advocacy for immunization. Promotion of birth registration was an original project objective (and indicator). However, because there is a government "Population Motivator" who serves each community and was responsible for the registration of births and deaths, this activity was of lesser importance for the project, and already accomplished for the vast majority of newborns.

The proportion of children who were weighed after the first day of birth increased from 47.8% to 75.6 % overall (Appendix B, Table 2), and increases were noted also noted by district (Table 3) and by ethnicity (Table 4). Newborn weighing was a project outcome indicator.

Figure 4. Newborn Care



KPC survey data indicate that both minority and majority project participants increased their awareness of danger signs in children under the age of 24 months. The changes in increased levels of awareness of two or three danger signs were statistically significant.

The MOH conducted an immunization campaign for children in the districts. Formative research conducted by the project personnel showed that minority families were unable to distinguish reliably between immunizations, nor did they consistently have immunization records. The project had to use a proxy of "report of any vaccination" in order to gather any information about this important child health indicator. Project staff also noted that some reported "vaccinations" were actually misclassified, as it is likely that at least some of the injections received by children were for a purpose other than vaccination.

Other interventions

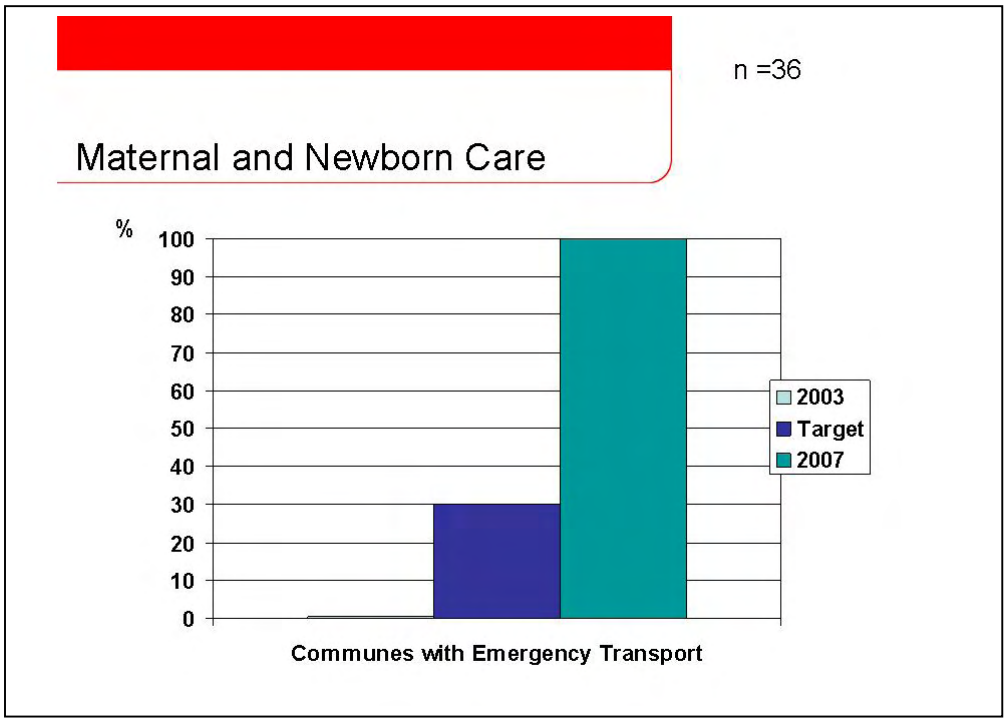
The FE team documented that health facilities were better equipped for newborn resuscitation. FE informants (trainers and midwives) were of the opinion that the skills of health staff had been enhanced in all maternal, child, newborn (MCN) intervention areas and that the management capacity of health staff had been increased.

Doctors were prepared to provide basic emergency obstetric care (EOC) and also the remaining components of comprehensive obstetric care (blood transfusions and cesarean sections with anesthesia). However, these can only be accommodated at the Provincial Hospital as the two

district hospitals do not have operating theatres. The distance to the Provincial Hospital can be more than 100 km, depending on the point of origin.
The project planned to install telephones in all 36 communes in the two districts in order to promote community linkages to emergency referral services. However, at the time of the FE, the basic infrastructure (telephone lines) had not yet been installed in all CHCs. Therefore the project could install telephones at the two District Hospitals and in only 19 of the communes.

This new (albeit limited) emergency telephone access complemented the home care behaviors noted above. This activity was selected as a project outcome indicator (See also Section B.3.C. for addition discussion.)

Figure 5. Communes with Emergency Transport



The project had made original plans to conduct peer education for youth, using the vehicle of a *SIM* house. Project planners had been informed that the Viet Kieu people have a tradition of creating a group home for teenage girls where they can gather and sleep away from their families. PATH was responsible for this strategy. A community inquiry conducted at the mid-point of the project among youth and elders revealed that SIM houses have evolved and no longer function as they were originally described. There are fewer of them overall, and they no longer exist in some communities. The adolescent-focused BCC messages that would have been transmitted in the SIM houses related to safer sex and family planning. These messages are outside the scope of the CS-18 Project; therefore project personnel did not search for a replacement for this planned intervention.

Recommendations

- Extend the time for program interventions to be implemented at the village and household level.
- Maintain availability and distribution of CDKs; consider low-cost (subsidized) social marketing of the kits as an additional distribution venue.
- Standardize the contents of the CDK (WHO standard).
- Revise the maternal card to better monitor TT shots > 2.
- Promote and advocate for the development of resources for adolescent health education.
- Advocate for expansion of EOC services at the district level, including development of the appropriate facility infrastructure, equipment and supplies, and the training or retraining of providers to provide these essential services.

Intervention 2: Nutrition and Micronutrients (40%).

Children

Child nutrition

The nutrition and micronutrient component of this project focused on children under two years of age and their caregivers, with particular attention paid to those under one year of age. The intention of child nutrition intervention activities was to: a) rehabilitate malnourished children; and b) promote optimal child nutrition in health and illness.

There were three primary CS-18 strategies for implementation of this intervention.

- The Positive Deviance Inquiry (PDI) approach involved the identification of impoverished families who nevertheless had well-nourished children, and exploring with those families the behaviors that have enabled them to raise healthy children. These "positive deviant" individuals (or families) would be asked to share their experiences with others through the mechanism of the community meetings and other channels, including
- "HEARTH", a.k.a., Nutrition Education and Rehabilitation Program (NERP). The Hearth model involved bring the mothers of malnourished children together to an intensive two-week, six-morning a week meeting, at which mothers would practice food-related hygiene, prepare foods (which they would have to contribute), and learn new ways of stimulating their children to consume the nutritious foods (which were likely not a part of a usual diet);
- Growth monitoring and promotion sessions, at which all children under the average height for age two was tracked, micronutrient supplements (Vitamin A) were given, and de-worming was conducted (per schedule).

It was noted by project planners that the United Nations Children's Fund (UNICEF) had implemented the Integrated Management of Childhood Illness (ICMI) strategy in four provinces in Vietnam since 2000. The community-based approach that was selected as a vehicle for the maternal newborn care interventions would have been an ideal and very complementary vehicle for delivery of Household and Community ICMI (HC-IMCI) interventions, since HC-IMCI also emphasizes behavior change, community services, and linkages between the community and

health care facilities. However, because the project was determined to be *already heavily intensive* in the amount of responsibility that had to be carried by CGs and other hamlet level health workers, HC-IMCI was not selected as an additional intervention strategy.

Unfortunately, the presence of co-morbidities (e.g., the burden of disease in children: diarrhea, infections, and malaria) other than those addressed by the project (i.e., worm infestation) might have adversely affected the success of strategies designed to improve child nutrition. It should be noted, however, that two of the 14 topics that were included in the BCC communication (and depicted on the BCC materials distributed to women) addressed danger sign recognition for newborn and child, which are consistent with national IMCI policy. In fact, the Rapid Catch indicator (knowledge of danger signs) increased in both districts at a significant change level.

Recommendations:

- Advocate for IMCI and HC-IMCI programming (government, UNICEF, and NGOs); place priority on those districts with high rates of malnutrition.
- Expand the scope and content of information about childhood danger signs into the community meeting topic entitled "Home Care for Children Under Two" (e.g., acute respiratory infection, diarrhea). Incorporate elements of home-based recognition and management of these illnesses, using HC-IMCI guidelines.

Positive Deviance

Project informants were also discouraged about the lack of success of the PD approach in its *purest* form. Project staff acknowledged that there were simply too few "positive people" within certain communities. The strategy simply could not work for lack of role models. On the other hand, several very positive role models have emerged from the breastfeeding support groups that were formed in the later years of the project. (Please see Section 3.B.b. for a further discussion.)

The PD-styled structured method of inquiry was taught to CGs for use in meetings. A PD-Plus approach was added, in which new topics were added to old ones within a single meetings; and a PD-booster (reinforcement of a previously learned topic) added an additional layer of complexity. There was perhaps simply too much attention given to structure and not enough to function. The mid-term evaluation (MTE) team found that most community meetings were too passive in their implementation, and recommended the strengthening of facilitation skills for the leaders.

That said, it can be noted that the community meetings, which were founded on the PD approach as a BCC strategy, have been working well in the districts. The endline statistics provide evidence that the majority of BCC messages, which were largely transmitted through the community meetings, were received and enacted.

Hearth

The *HEARTH* strategy was less successful than anticipated. The most substantial challenges to the PD/Hearth intervention in this instance were: 1) the high levels of food insecurity and poverty in many of the communities (families literally did not have food to contribute to the

cooking demonstrations); 2) low population density; and 3) great distances between individual residences (meaning that very few individuals could gather conveniently in a group) in several of the communes and hamlets.

The successful components of the intervention included the development of IEC materials for mothers and the training of 16 district trainers to train CGs in the approach. Hearth sessions were conducted in approximately 100 hamlets, although with varying degrees of enthusiasm on the part of the participants (who found them too time intensive) and with varying degrees of success (a mixed pattern of child weight during and after sessions, difficult to interpret). CS-18 staff modified the length of the programming in response to the concerns about time; nevertheless hearth participation, and community contributions to the hearth sessions remained at very low levels. The MTE team focused intensely on this particular strategy and made several recommendations for reshaping it. CS-18 Project staff made several major readjustments in response to MTE recommendations. These are fully detailed in the MTE amendment submitted in April 2006.

The MTE team noted that the intervention was not being implemented in strict accordance with its guidelines that define the entry and exit criteria. Too many children were admitted, regardless of weight, and none were "graduated" when they met that criteria (instead they were kept in the group throughout the entire course of its implementation in a particular setting). CS-18 staff responded that this was by design. They admitted better nourished children to the sessions in order to provide positive role models, in accord with the PD approach that underpinned the nutrition intervention strategies. Nevertheless the Hearth strategy was redesigned in the fourth project year. Eight guidelines for conduct of future Hearth sessions were developed. This included strict guidelines about the community settings in which the sessions would be centered during the remainder of the third and fourth program phases.

A third requirement of the Hearth methodology is that children be de-wormed prior to entry. That requirement was in conflict with existing MOH guidelines. The CS-18 staff advocated with DHS staff who agreed to reconsider the MOH existing health guidelines, which set a higher age boundary (age 5) for eligibility for de-worming than is promoted by the Heath methodology. Health administrators agree to consider lowering the age limit in the MOH guideline to authorize de-worming of children between 12 and 24 months of age.

Finally, it was noted that food supplementation programs enacted by the government in these communities are targeted to families generally, and not to children specifically. Already malnourished children may not receive a needed increased in their proportional share of the family food supplements. There are programs that have identified nutrient-dense foods that can be prepared as specifically suited to child portion size and taste (e.g., the "Plumpy Nut" pudding that has proved so successful in several Southeast Asian countries). Incorporation of such an approach into the Hearth-related food interventions could be considered, when planning future programming for nutrition rehabilitation.

Recommendations:

- Future programs should give careful consideration to community characteristics prior to selection of sites for conduct of Nutrition Education Rehabilitation Programs. Conditions

of population size and food insecurity in the community will work against effectiveness of this particular approach.
- Problems of food insecurity should be addressed through multi-sectoral programming and engagement of other stakeholder (Ministries, NGOs).
- Consider development of approaches to food supplementation programs that bring food to the vulnerable child rather than being shared among the entire family.
- Advocate with the government to change guidelines for de-worming of young children ages one to two years.

Growth monitoring and promotion

However, the growth monitoring and promotion (GMP) activities were well received by most, although some mothers indicated that they thought the children were weighed too often, and that attendance at these sessions required a commitment of too much time. A very few mothers thought they should be paid an incentive to have their children weighed.

The GMP activities were also quite successful. Growth monitoring protocols were followed precisely and with good quality of recording and reporting. CGs were known to take the scales to the home of mothers who were unable to bring their child to the CHC for the weighing session.

CGs noted that there was a greater number of food groups and more variety in the food being given to young children (even given food constraints). The combination of Vitamin A distribution and de-worming of young children was considered to be a good strategy.

The GMP sessions also served as an opportunity for parents (mostly mothers) to spend time attending to the needs and interests of their children. Children in these communities are most often left to the care of older siblings or grandparents, while their parents are engaged in field work. There are very few opportunities for infant or child stimulation under such circumstances, let alone attention to proper nutrition choices and practices.

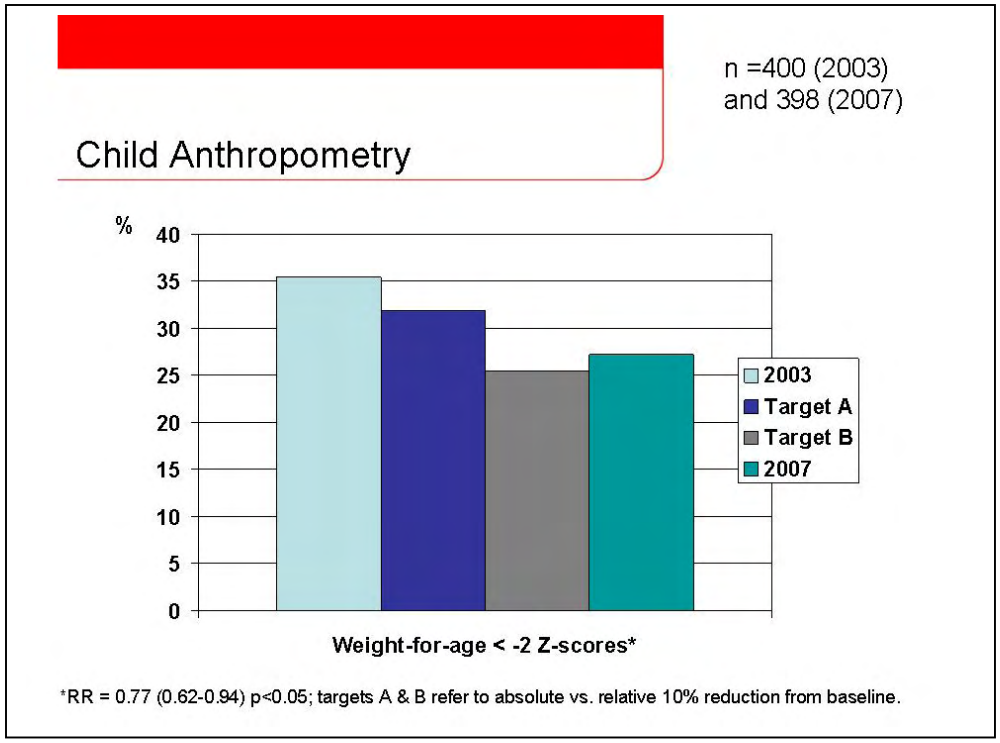
Several community constraints were noted by FE informants, which contributed to the still unacceptably high levels of malnutrition experienced in some communities. A fundamental constraint is that families often run short of rice, which is the basic dietary staple, despite government subsidies. Additionally, certain "unsuccessful communes" had some types of food that they didn't know how to use to the best nutritional advantage (e.g., they plant peanuts, green beans, sweet potato, jackfruit, but they do not necessarily use it in their own home meals). Farm fields are very far distant; and families do not (with few exceptions) use home gardening to augment their own food availability.

Two program outcome objectives addressed the nutrition interventions. The first was weight for age (WFA). The intended meaning of the target of a 10% decrease of child malnutrition (< 2 WFA) is unclear. The project may have intended to measure an endline target (i.e., 10% of the children would be malnourished), an absolute percentile decrease (i.e., baseline, minus 10%), or a relative decrease (i.e., 90% of baseline: from 34.5% to 31.8%). In any event, endline data indicate that 27.2% of children age 0-24% had a z score of <-2 WFA, of whom 6.0% were at <-3 WFA (reduction by half overall). Proportional decreases in numbers of malnourished children

were demonstrated for majority and minority children, in both districts. Given the very challenging community circumstances, even this degree of reduction is a noteworthy accomplishment.

The global international health community recognizes the challenge of measuring complementary feeding. Three related indicators were selected from the baseline data for comparison with endline figures. A small, but not significant increase in behavior change was demonstrated for two of these indicators (number of meals per day, as age appropriate), i.e., the baseline values increased modestly. The third indicator, focused on the variety of foods fed to the child, was very favorably increased over baseline (over double the raw percentage and statistically significantly different) but was still unfavorable in a practical sense, as just over one third of the children received a variety of food groups in their daily diet.

Figure 6. Improved Health Status of Children Under 5



Recommendation

- Future programming needs to emphasize importance of/better ways to "care" for the children (interaction, stimulation, parental attention). Early childhood development programs would seem ideal for introduction into community programming.

Micronutrients

The major venue for the distribution of Vitamin A is two government-sponsored campaigns per year, in the months of June and December. At this campaign all children from 6 to 36 months of age are invited to the health facility to receive a single dose. Children over the age of 24 months

also receive a de-worming medication. CS-18 did not have project responsibility for this strategy; however, project staff recognized the interactive effect that of both Vitamin A distribution and de-worming could have on promotion of child nutrition. The MOH

representatives on the FE team noted that the responsibility of CGs to distribute this supplement needs to be reinforced.

The project did seek to promote Vitamin A distribution to postpartum mothers. That strategy (and its success) is fully discussed in an earlier section of this report.

Recommendation:

- Ensure that the supply of Vitamin A is sustained at CHCs; increase degree of supervision to ensure that it is distributed to mothers and children.

Mothers

Maternal anemia

A second focus of this intervention was on women ages 15-49. The intervention objective was to promote optimal maternal nutrition for both the mother and the fetus. This was addressed through a focus on reduction of the incidence of maternal anemia, through nutrition counseling, the provision of iron and folate supplements to pregnant women, and the provision of Vitamin A supplements to pregnant women. (See the earlier discussion of maternal and neonatal care for indicators and outcomes of this micronutrient supplementation).

Maternal rest and nutrition

There was awareness among FE interview respondents of the importance of feeding pregnant mothers a better quality and quantity of food. Women enjoyed the way in which these messages were transmitted. They liked the nutrition education they received via the food demonstrations (organized every two months) and nutrition information and cooking contests (done twice each year).

There was also greater awareness of the need to reduce the workload of pregnant near-term (and lactating) women. Men were particularly expressive about the actions they had taken to offer respite to their wives. They spoke about assuming the tasks of carrying wood and water, and taking over field work responsibilities. (Note however that they expressly declined to assume the responsibility for preparing family meals!)

One fact proved puzzling to the FE team. It was noted that many people had satellite televisions in their homes and many had motorbikes. This was true even in communes that had documented rates of malnutrition (and therefore, presumably, little food.). One informed respondent offered his personal opinion and reflection that perhaps families were using money from government subsidized poverty reduction programs to generate more income, but were using it unwisely.

Intervention 3: Breastfeeding (15%)

Breastfeeding is almost universal among Vietnamese women, and serves as the optimal public health solution to infant nutrition in resource poor environments. However, in the CS-18 Project settings, the practices of immediate and sustained breastfeeding were less prevalent. The CS-18 Project proposed to use a PD approach among women family members and influential members of the community to increase support and create options for lactating women to extend the period of exclusive breastfeeding to at least four months of infant age. Complementary breastfeeding messages would include the discouragement of pre-lacteal feeding, the value of colostrum as an infant food, the health benefits of breastfeeding for the mother (postpartum recovery and natural birth spacing), and options for complementary feeding practices combined with breastfeeding for children to 24 months of age.

Breastfeeding support groups

Breastfeeding support groups (BFSG)were established in 10 hamlets in Dakrong and 32 hamlets in Huong Hua by the end of Phase 4. The BF support group strategy was piloted tested in the Huong Hoa District before expansion to Dakrong, and therefore there are more groups in the former than the latter district. These groups were very well received by the women, and proved to be very helpful to them. There were many positive role models among the CGs who led the groups. (One trainer used her own breasts to demonstrate the technique of milk expression.) Many "positive persons" emerged to serve as role models and leaders of future support groups. There were several women in each of the support groups visited by the FE team who had been exclusively breastfeeding for four, five, six, and even seven months. There was even one example of a mother who had reverted back to EBF after having introduced complementary foods.

Data from the endline survey offer some evidence of the success of this intervention overall, and among ethnic groups. CS-18 examined whether the presence of a breastfeeding support group (BFSG) was associated with better EBF. The absolute numbers were quite small (only 32 mothers came from hamlets with BFSGs), nevertheless BFSG membership did seem to be associated with better EBF. Mothers from hamlets with BFSGs reported exclusively breastfeeding their infants of four or less months of age more commonly than counterparts from hamlets lacking BFSGs (55.6% compared to 46.7%: endline data). This was also true for infants of six or less months of age (63.6% compared to 32.0%) (Table 6). Mothers from hamlets with BFSGs also reported improved levels of seven of nine complementary feeding indicators than counterparts from hamlets without BFSGs.

The breastfeeding support groups seem to be an ideal and effective model appropriate for wide scale-up.

Members of BFSGs expressed their new understanding that colostrum was an ideal food for the newborn. The customary practice identified in the communities at baseline was to discard this pre-milk. The proportion of *all* women who discarded colostrums decreased remarkably from 46.8% to 12.2% (Table 2). Membership in a BFSG did not appear to have any additive effect to this behavior change, as the decreases were statistically significant for women who resided in hamlets both with and without a BFSG (Table 6).

Women understood the important health benefits for both mother and baby of putting the baby to breast immediately (within one hour) after birth. They also knew that babies would not get thirsty or hungry, while waiting for the mother's milk to come in, if they were fed with the colostrum. BFSG members and non-members both demonstrated a decrease in the proportions of women who gave prelacteal feeds to their infants. The proportional decrease among *all* women was from 11.8% to 8.6% (Table 2).

The FE team spoke with many women who had managed to extend the time (from days to months) that they stayed home from the fields for the purpose of EBF. They were quite resourceful in finding ways and means to do so. Support group members helped one another to identify solutions and strategies for combining their family responsibilities (field work, cooking, and care of other family members) with EBF. Some women received support from their husbands to stay out of the fields for several months. Women who returned to work were sometimes able to work in more nearby fields and return to the home periodically for infant feeding. Others expressed their milk so that other family members (like the mother-in-law) could feed the stored milk by cup to the infant.

Two outcome indicators were selected for measurement of this intervention. The project exceeded its target on both of the indicators.

Figure 7. Complementary Feeding

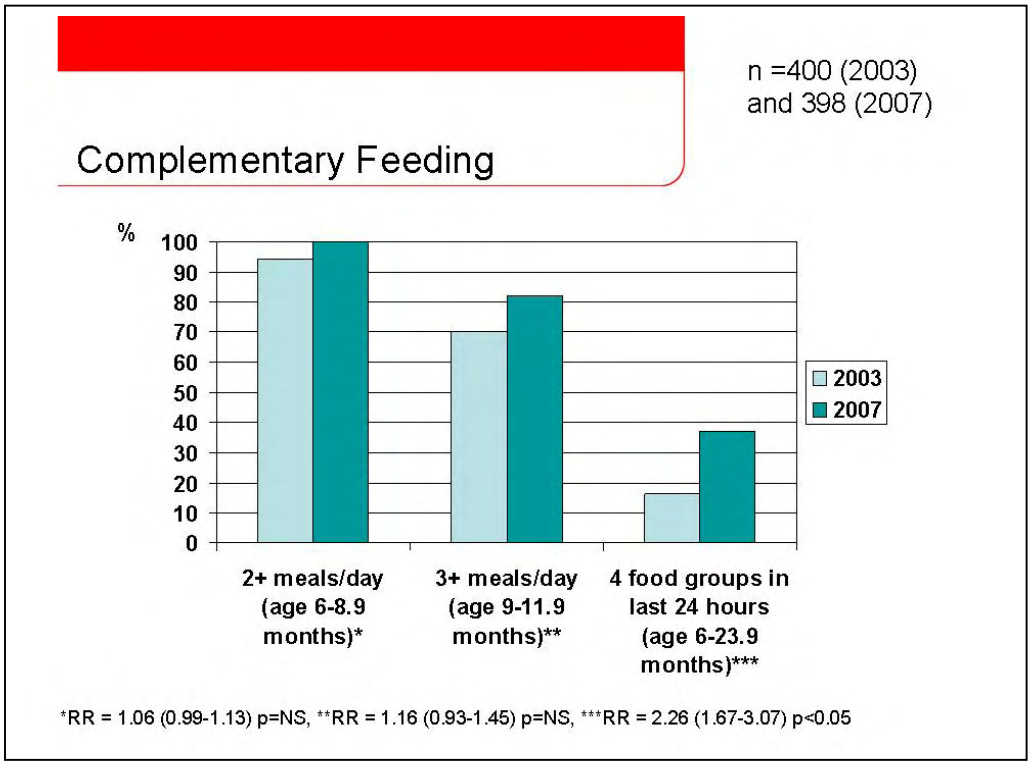
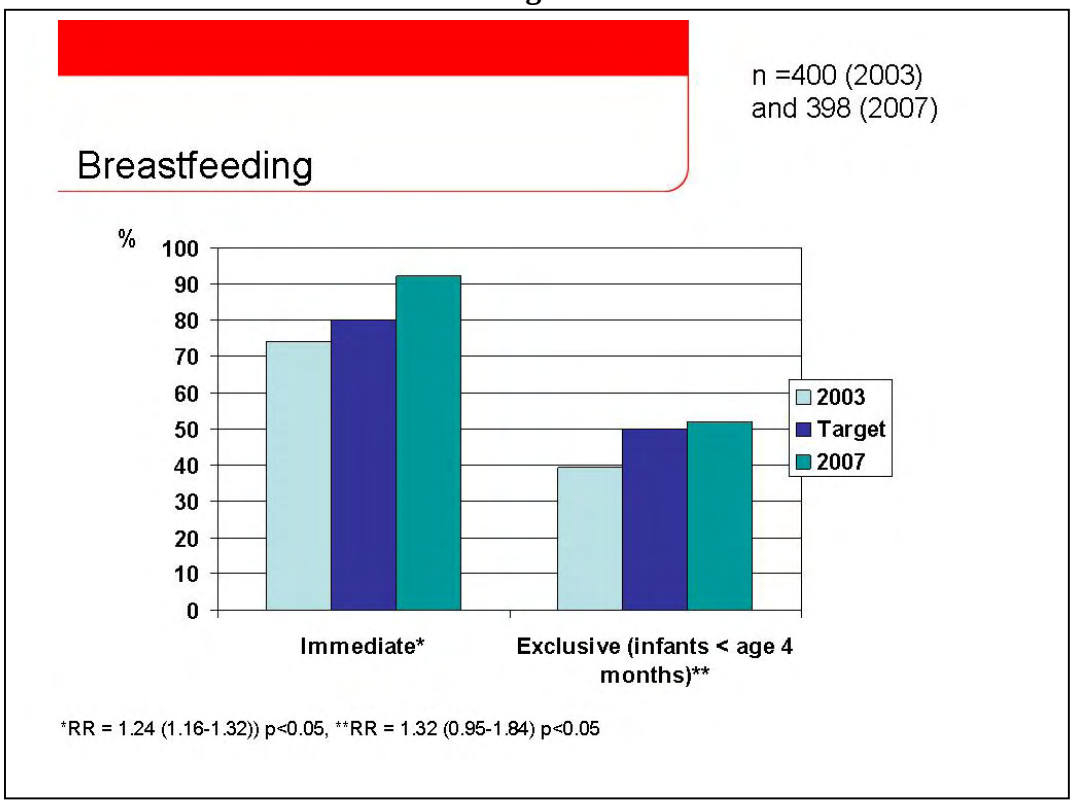


Figure 8. Immediate and Exclusive Breastfeeding



There was considerable discussion among the women about personal, family and community expectations of their behavior. Some women stated that they themselves made the decision to stop EBF and return to the field work, even if family members would have supported a different decision. Men noted that women's work was in "exchange for the dowry," and that this was an unstated, but well perceived social norm, even if the individual man was willing to amend it.

Men's groups

Discussions with men were very encouraging. They expressed their own support for better nutrition of the pregnant and lactating women in their community, and for EBF of the infants. They suggested that women eat "crabs and snails" instead of the prevailing custom of eating only banana flower (the leaf, combined with salt and chili) as an exclusive food for lactating women. Several fathers noted that their exclusively breast fed infants were "healthier" when compared to their earlier born children who had received other types of food. One man pointed to a 5 month old EBF, nothing that the child was bigger and more "filled out" than a seven-month old neighbor child that had received complementary feeding.

The men were *not* aware of the birth spacing benefits of exclusive breastfeeding (lactational amenorrhea method), which is an approved method under MOH guidelines. CS-18 staff indicated that they would inform the projects trainers/supervisors, and encourage them to include the information into the BCC messages.

Recommendation

- Use positive practice models to motivate others to change personal beliefs and practices (ultimately affect social norms).
- Encourage use of breastfeeding support groups, but extend membership to family members so that social and family norms can be influenced.
- Extend/establish breastfeeding support groups to all of the villages.
- Expand messages offered through the breastfeeding support groups to include advocacy for maternal nutrition, birth spacing, and smoking cessation.
- Advocate with government to consider community meeting and EBF support groups as models for national replication (rural areas and minority communities).
- Use BCC channels to change expectations of men and the community in general to increase respect for women and the expectations about the family roles of both men and women.

2.c. Special Studies

The CS-18 Project conducted a number of special surveys to augment the information available for project design and interpretation of effect and impact.

- A study of behavioral determinants was conducted at baseline (2003). The objective of the study was to complement the baseline household and health facility surveys with data that documented prevailing maternal, newborn and child health practices and to describe the reasons for these behaviors, in order to inform the behavior change interventions.
- An assessment of the "PD-Plus" approach used by the CS-18 Project within its community meetings was conducted during Phase 3. Analysis is on-going, but early results confirm that most Community Guides were able to implement monthly PD inquiries, and that the approach was acceptable to both implementers and beneficiaries, as measured by attendance figures and interviews. Further analysis are planned to examine the effect of attending PD-informed community meetings on reported behavior change.
- An assessment of indicators, measurement and analytical methods of three domains of community capacity (collective efficacy, ownership and information equity) was conducted in the final year of the project. The objective of this study was to assess the degree to which project interventions had promoted new strengths (confidence and competence) within five levels of communities (Provincial, District and Commune Steering Committees, Community Guides, and villagers), which would enable them better to confront development challenges. The results of this study are forthcoming.

B.3. Results: Cross-cutting Approaches

3.a. Community Mobilization

The CS-18 approach to community mobilization was to build on the existing community leadership and management system. It was the project staff's expectation that the infusion of new information about new or improved practices would re-energize the leaders of these political structures (committees), and create an enthusiasm on the part of leaders that would, in turn, energize the community and stimulate them to action.

The political administrative structure of the country is fashioned around a People's Committee (PC). The PC is informed by advocacy groups, such as a Women's Union, with representatives appointed to speak on behalf of their constituencies. CS-18 created two Steering Committees, at district and commune levels. Members of the Steering Committees, at each level, included DHS staff, WU and People's Committee members. These committees met regularly (as often as monthly) over the term of the project. Project officers and technical staff participated in each District Steering Committee (DSC) meeting and, when possible, in some Commune Steering Committee (CSC) meetings. The meetings served two functions. They were the forum for discussion of project activities and problem-solving. They also served as a training forum, keeping Steering Committee members current on "best practice" advances on relevant project topics.

The wisdom of this approach is that it used an existing system that people understood and respected. There was already a very high sense of "community" within the communes and villages. The project's intention was to help them to become more organized to generate a more effective plan of action to address community needs. (For example, several community residents who were interviewed by the FE team remarked that prior to the project the individual response to an emergency situation would be "to pray." The project helped them to find more immediate, and possibly more effective approaches (such as mobilizing neighbors to contact and/or to help carry a woman to the CHC to receive help for a problem at the time of childbirth). An operations research study was conducted to test the concept of "community efficacy," as a CS-18 outcome.

District and Commune Steering Committee members interviewed by the FE team indicated their enthusiastic support for the Steering Committee management model. The model was being used effectively for CS-18 intended purposes. There was little turnover of membership over the life of the project; partly attributed to a stable community population (little migration between hamlets, communes or districts) and partly attributed to a sense of personal satisfaction derived from knowing that they were doing good work.

The Steering Committees directed and motivated the work of the Community Guides, who were at the heart of the CS-18 program. The CGs used the mechanism of the community meeting for BCC, and for motivating communities to action. The MTE team noted some degree of passivity on the part of community meeting participants, and recommended that project staff provide additional guidance, training and support to the CGs to assist the development of communication and meeting facilitation skills. This was accomplished through providing participatory learning

action training courses for the CGs. A video demonstrating these skills is being produced and edited.

Steering Committee members expressed the opinion that the community mobilization approach had value, and could be applied to addressing other pressing community needs. For example, the communities are challenged by a lack of clean water, poor sanitation practices (approximately 8% of households have latrines), the province has one of the highest rates of worm infestation in the country (both adults and children often are barefoot), and smoking is highly prevalent among both men (cigarettes) and women (raw tobacco). However, there was no example to which the CS-18 or the FE team could point that would indicate that the Steering Committees had taken this next step, i.e., extending lessons learned from the project to a new application for community action. Time (lack of it by project phase) was certainly one limiting factor. (Please see a further discussion under the topic of the Living University in Section B.3.d.).

The effectiveness of the Steering Committee model as an approach to community mobilization depends greatly on strong leadership and articulate member-advocates. The FE team noted that in the communes that were designated as "not successful" (i.e., little progress toward indicator targets was documented, participation in project activities was marginal), the Steering Committees could be characterized as "weak" in both leadership and initiative.

However, in those communes designated as "successful", there was substantial anecdotal evidence that the community had been moved to self-care action. The most impressive of examples is the success of the breastfeeding support groups, as evidenced by the prolongation of exclusive breastfeeding among the group members, accompanied by the fact that men, mothers-in-law and other community members (neighbors and friends) had contributed in some way to make this happen (e.g., took over field work, carried wood and water, fed expressed breast-milk to the infant when mother was absent). These particular communities – and many others – expressed strong support for continued participation in project activities, as measured by the number of requests conveyed via CGs to Steering Committee members that they commit to sustaining things such as the Men's Group meetings, the Breastfeeding Support Group meetings, the antenatal care outreach services, and the community meetings for both social and educational purposes.

As previously noted, the Steering Committees are a modification of an existing political structure, so it is very feasible for the groups to continue to meet and function. Some of the members of the Commune Steering Committees receive very modest monthly stipends for their activities in the community (e.g., the Population Motivator), which serves as an additional incentive. It can be reasonably anticipated that the community mobilization approach will be sustained after the CS-18 Project departs from the community, and that the community members will themselves either sustain or demand assistance to sustain select activities (such as those noted previously). There will almost certainly be some decline in the volume and pace of these activities, unless the DHS itself provides strong leadership and motivation to the CHS and in turn, to the communities.

Recommendations

- The District Steering Committee can be encouraged to identify model "successful" communes that demonstrate positive practices, and facilitate "cross visits" between Commune Steering Committee leaders and community members, so that others have the opportunity to learn new information and see models of better practice.
- The District Steering Committees can be encouraged to assess the degree of participation and the effectiveness of leadership of community leaders (who are appointed to their positions), and find ways to build leadership capacity where it is needed; cross-visits are one suggested strategy.
- District and Commune Steering Committees should be encouraged to find the "next application" for their leadership skills. Priority needs should be identified by and with the community (e.g., water, sanitation, smoking, malaria, and diarrhea). The committee leaders should be provided with models of community action that can be used to address those needs (e.g., the Community Led Total Sanitation model, use of insecticide treated bed nets, Community and Household Integrated Management of Childhood Illness; anti-smoking education campaigns), and provided the guidance, supervision and assistance that they need to implement them within their communities.

3.b. Communication for Behavior Change

The CS-18 approach to behavior change communication was focused at two levels. BCC for health staff at the *facility* level emphasized improvement in the quality of maternal and newborn health services delivery at the facility and through outreach services. A series of training events (discussed in detail in section B.c.2.iv.) was designed to update knowledge and skills in clinical practice, and promote better communication skills. The training focused on counseling and emphasized strengthening skills in supportive supervision (providing informative and positive feedback, in addition to identifying areas where improvement was needed). Community Guides received the same training in communication and counseling skills.

The BCC approach at the *community* level focused around the mechanism of the community meeting, through which/at which the 14 health information topics were presented to and discussed with community members (in large majority, pregnant women, women with children under age two and family members of these women and children [husband, in-law]). This approach was augmented with additional activities designed to accommodate the learning styles of the various community residents, and specifically the needs of the largely illiterate minority residents, who were also not able to converse in the majority (Kinh/Vietnamese) language. These additional BCC approaches included:

- Demonstration of positive practices (role models and demonstrations);
- Establishment of support groups (men's groups, EBF groups);
- Education on self-care practices for maternal/newborn health (adaptation of the Home Based Life Saving Skills approach designed by the American College of Nurse Midwives [ACNM], that emphasizes problem recognition and taking action); and
- Home visits (for health talks, for support, for actual delivery of health care services, such as ANC, postpartum care, ill-child care, discussion of family planning [although this was

not a CS-18 intervention] and assessment of the ill-child [although again, C-IMCI was not a CS-18 intervention);
- Community dramas;
- Competitions/contests;
- Mass media events (including use of a commune loudspeaker to convey information or to call residents to meetings); and
- Distribution of booklets on MCN behaviors (pictorial depictions of best practices on 14 topics).

There were some evident successes in application of these various approaches, as measured/evaluated through discussions with community participants. The impact of successful BCC interventions can be documented through project indicators that indicate adoption of better MCN practices (Please see section B.1.).

Several very good role models were identified (particularly among exclusively breastfeeding women) and these role models were encouraged to speak with and share their experiences with other women/community members. The people of the community found the contests and competitions to be very interesting and exciting, and capable of stirring them to action. The booklet on MCN behaviors was very successful as a vehicle for transmittal of information to low-literacy women, but it also proved to be a valued possession. (This fact was also noted by the MTE team). Color printing and laminating these materials was noted to be rather expensive. However the cost-effectiveness "trade-off" was the fact that women actually kept the cards, referred to them for reinforcement of information, and at least a few women interviewed by the FE team stated that they had used the cards to share information with others (e.g., a newly delivered mother shared the information with her younger sister who was planning to marry in the near future).

It seemed to be the case that new information, provided by a trusted source, was acceptable and believable, even if it was inconsistent with prevailing beliefs and practices. Quantitative data discussed in Section B.2.b. provides the evidence of behavior change in many maternal and newborn care practices, about which information was disseminated through these BCC strategies. The enthusiasm expressed by community members about the majority of these approaches also suggests that there is the potential that many approaches, particularly the community meetings, can be sustained by CGs over the longer term.

The constraints inherent in these BCC approaches included the fact that in order to generate maximum impact, the approaches each require a great investment of time on the part of the trainer (the CG and his/her supervisor) and of the community participant. Many of the community meetings were being arranged in the early morning or late afternoon, before and after field work. Many discussions took place on the way to or from, or actually in the fields. There was some suggestion of potential for "burn out" on the part of CGs who had to add this burden of work to their own household responsibilities. There was also the suggestion that there was the potential for loss of interest in 14 topics, repeated at various meetings and offered via various communication channels, implying the need – sooner rather than later – to add new topics to the mix (which is actually an opportunity, rather than a challenge). At the same time, the community

member-participants are continually "aging", and newer members (those emerging to adulthood) need to receive initial exposure to these same messages.

Some CGs suggested that there is perhaps "too much" material in the IEC packages that were provided for their use. They felt compelled to convey all of the messages that were presented in these materials, as they did not feel either competent or confident to "pick and choose" those topics and content that might be more or less appropriate or important for the particular audience.

It was also noted by some project implementers that the PD process is unnecessarily complicated (very "step-wise" and formulaic). Others (those very knowledgeable about the PD approach) remarked that this was actually an advantage from two perspectives: a) these individuals had been informed that the Vietnamese people preferred a style of step-by-step instruction for new learning; and b) the rigor in the method reflects its adherence to a theory base.

Nevertheless, as a practical matter, it was not even possible to identify a positively deviant individual in some cases (e.g., in hamlets with very low populations) which made the approach less useful as a BCC strategy. However, there is the distinct possibility that a lasting impact of the CS-18 Project will be the generation of some "positive people" to serve as role models (particularly among the EBF women). The PD approach may work even better in this setting in the future because the prevalence of positive people will (or may) have been increased, and because the community members are more accustomed to the concept, and may recognize when their neighbors are demonstrating "positive practices."

Language issues presented a substantial challenge to BCC approaches (the major *lesson learned*). The materials that contained messages printed in the majority language in addition to pictorial images were labeled "distracting" by minority language speakers and the non-literate. A very few events were attended by individuals who spoke only one of as many as three languages; presenting a substantial challenge of translation, not to mention the impact this need for translation would have had on "moving the meeting along" (avoiding boredom and restlessness).

The CS-18 Project did not engage heavily in BCC via mass media, particularly radio and television. Written materials are not useful for the non-literate, so newspaper and other printed media were appropriately not used by the project. However, many (if not the majority) of the population did have radios or televisions (acquired even, it was suggested, as a tradeoff for food). It would be useful to translate certain messages and convey them in a way that maximizes the effort involved in translation (an audio, if not audio-visual media). This might represent the most cost-effective, sustainable, BCC approach for minority populations. It is known that at least one such effort is presently in development for television distribution, perhaps as early as fall 2007.

Recommendations

- The IEC materials developed for the project should be reviewed, with the intention of selecting the most universal and useful messages, as a cost-benefit tradeoff for laminating them (which has proved to have a very practical purpose).
- A new terminology might be employed in future BCC trainings, with the emphasis placed on "positive practices" or "positive behaviors" rather than "positive persons."

- Use these positive practice examples in larger media environments, such as IEC campaigns disseminated via radio and television, in a variety of minority languages.

3. c. Capacity Building Approach

The CS-18 Project included a major emphasis on building capacity for improved maternal child care practices. One of the five project objectives is to "improve sustainability of all activities through development and further strengthening of the key Project partners."

i. Strengthening the Grantee Organization

One project informant (Please see section C.1.) characterized the CS-18 Project as SC's "emergence" (its "breakout" and "coming out") as an NGO serving both majority and minority populations in Vietnam. The positive outcomes achieved by the project (see Section B.1.) in improving maternal newborn care and breastfeeding practices among these populations groups suggest that the grantee organization has achieved some degree of prominence in these efforts. The organization also has opportunity to apply these lessons learned among minority populations in Vietnam to projects being developed in other countries, focused on maternal and neonatal care, that are emerging under SC's *Saving Newborn Lives II* initiative. An additional opportunity exists in other provinces of Vietnam where Save is developing a Maternal and Newborn Care project that emphasizes the household to health facility continuum of care approach.

The results demonstrated for the application of the PD/Hearth and GMP (NERP) interventions, particularly their application to nutrition rehabilitation are, on the other hand, rather discouraging for organizational identity and prominence. The Sr. Child Survival Advisor (located at Save the Children Home Office [HO]/Westport [SC/W]) acknowledges that the community characteristics that either enable or disable the effectiveness of this approach should have been investigated in advance of the selection of the intervention for this particular community setting. Certainly SC has sufficient experience with the PD/Hearth approach itself, and with its application in Vietnam (documented in a number of peer reviewed publications) that the "preconditions" for success would have already been identified, and the advance inquiry made in this instance. In fact he stated that this experience "reinforced what was already known about Hearth."

The SC Sr. Child Survival Advisor is committed to the development of other child survival projects. Their design will certainly be informed by both the successes and challenges of the CS-18 Project in Vietnam. The Sr. Child Survival Advisor has also committed the organization to dissemination of this information within the global Save the Children network and the NGO community.

ii. Strengthening Local Partner Organizations

The major project partners identified at the onset of the project were PATH, RTCCD and the District Health Management Teams in Huong Hoa and Dakrong Districts, Quang Tri Province. The Sr. Child Survival Advisor noted that there was never a question about the capacity of PATH to produce the IEC materials that were the essence of its contract. PATH met all of the highest quality expectations that were set for its performance.

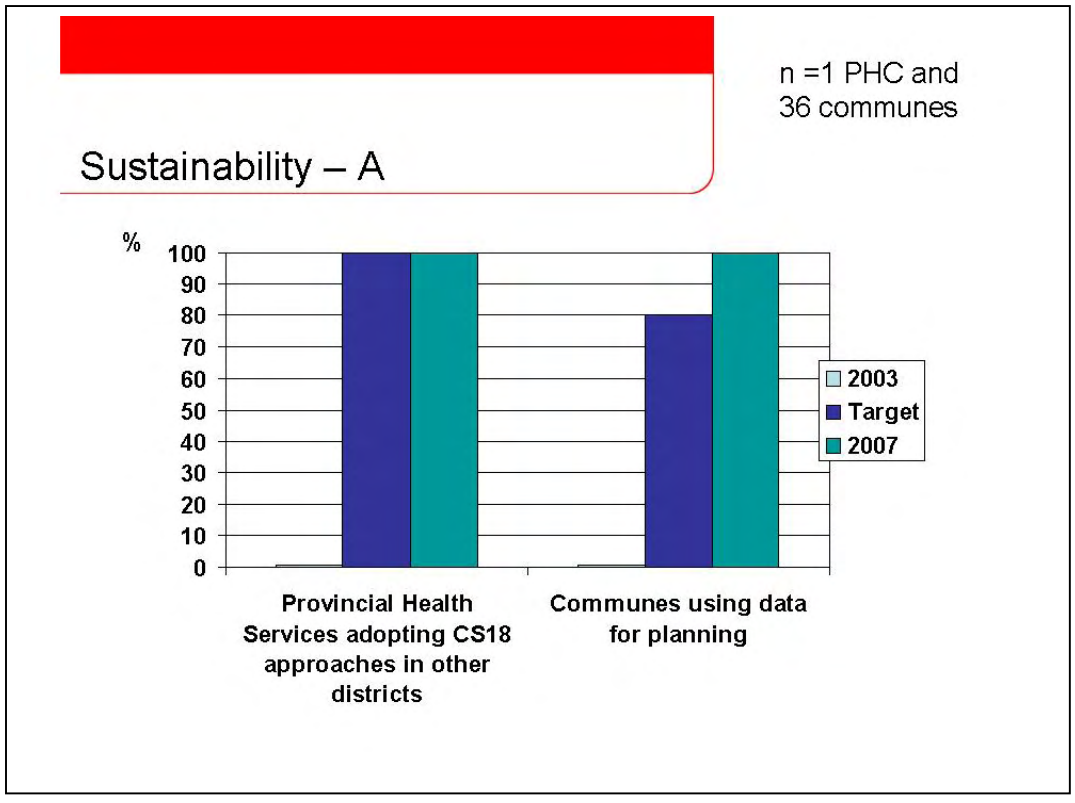
RTCCD was expected to assume a leading role for project training for community-based activities (GMP, Hearth, and BCC), developing specific BCC strategies and training materials

for the project, and both monitoring and supervising certain training activities. This local NGO had been selected for partnership on the basis of successful work it had done in other sector projects, and a prior successful partnership in health-related field research. SC made the assumption, based on this prior experience, that RTCCD had similar capacity in the nutrition and maternal/newborn topic domain. This may have been the actual case at the organizational level. However, the individuals assigned to this particular task did not produce quality materials in a timely manner. They were not well skilled in curriculum design. A very unsatisfactory partnership resulted, with failed expectations on both sides. There was subsequent dissolution of the partnership sub-agreement. The experience served as *a major "lesson learned"* about the importance of assessment of the organizational capacity of lesser-known NGO partners.

CS-18 lists several national, provincial and district entities as additional "partners" in the project. The DIP (page 17) indicates that partner capacity would be assessed using PACT's Organizational Capacity Assessment Tool "…during the baseline, midterm and final evaluations." However there is no report of the outcomes of that assessment at baseline or midline; therefore, it was not conducted at endline, as there would be no comparative data.

Formal assessment of capacity of national entities (e.g., Hanoi Medical College) or of the Provincial or District Health Service, was likely not necessary, in any event, given the largely administrative and supportive role that they would serve. The major capacity building intention at this level was promoting capacity for use of data for planning program expansion. One project indicator addressed this issue at the provincial level, and a related indicator addressed the planning issue at the commune level.

Figure 9. Improved Sustainability



A formal assessment of the service capacity of major program implementers - the Huong Hoa and Dakrong district health staff - was conducted at baseline in conjunction with the health facility assessment. Five facilities were assessed in each district. Health staff were interviewed concerning their preparation (training) and retraining. It was the intention that staff would be observed and assessed for the quality of antenatal and delivery service provision; however this was not possible as no clients were served on the survey day. Structured interviews were substituted for direct observation. Results, detailed in the DIP, indicated generally unsatisfactory results with respect to provider knowledge and skills for major concepts of quality antenatal and delivery care and neonatal resuscitation. Written protocols were not available as a resource. The training agenda was informed by these findings. (Additional information about baseline knowledge and skills was gathered via pre-tests administered prior to training events. The FE team did not review those records.) There is no plan for reassessment of these health workers or facilities at the project endline.

The improvements in quality of care offered by health staff is assessed on an ongoing basis through the supportive supervision process that was strengthened through project activities and interventions. However, these supervision records are the only source of evidence that would support any findings (either positive or negative) concerning increased capacity of health staff as an outcome of the CS-18 training and supervision interventions. These records were not reviewed by the FE team; however, the Program Secretaries (both midwife trainers and supervisors) stated that there had been improvement in the quality of service provision, as evidenced by higher (better) performance achieved on performance checklists.
An assessment of "community capacity" was conducted as an operations research study (see section B.2.c). Community was very broadly defined to include provincial and district MOH partners and the membership of Commune Steering Committees, which was comprised of CHC staff, CGs, and villagers. Capacity enhancement strategies for these groups included; 1) technical and management training; 2) enhancement of facilitation skills; 3) active learning; and 4) learning through positive role models. A summary of findings from that study indicates that appropriate aggregates indicates an increased sense of collective efficacy (confidence to solve future health problems) and a sense of ownership and responsibility for taking action to address community problems.

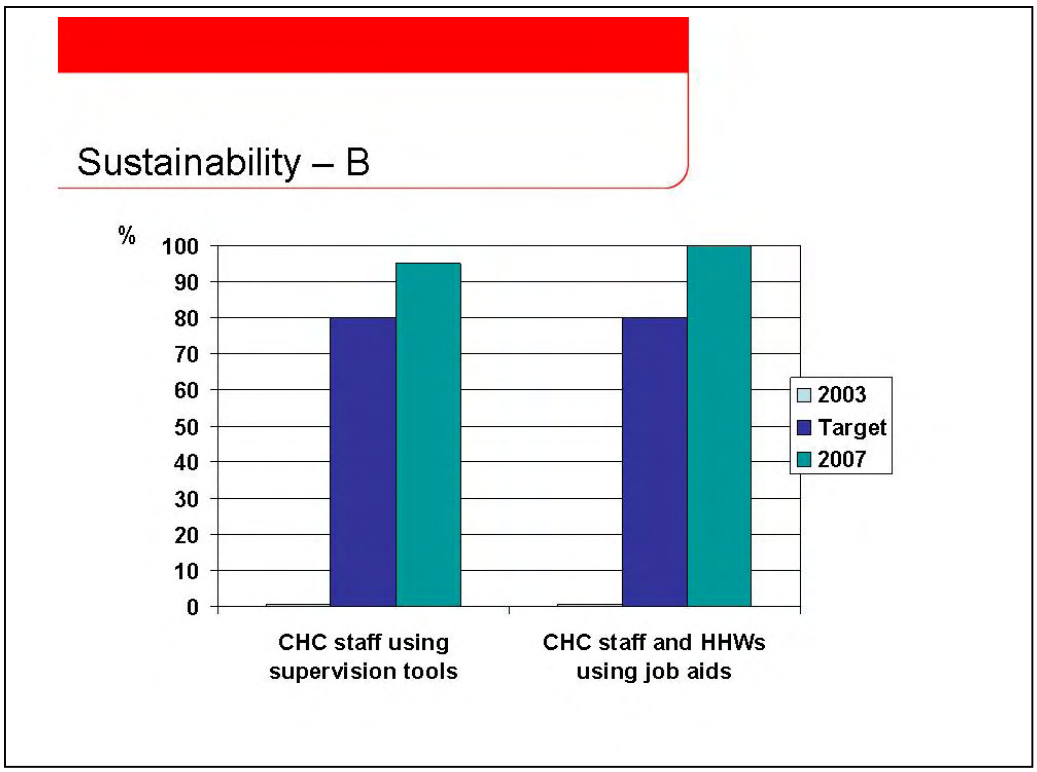
iii. Health Facilities Strengthening

CS-18 Project staff used a self-designed survey observation and interview tool for conducting the health facility assessment (HFA) at baseline. The HFA documented understaffing and low levels of service availability (24 hours emergency access) at the CHCs. Telephones for use in emergencies were available in only a few of the facilities. The District Hospitals have no operating theatre, and are not capable of providing comprehensive emergency obstetric care.

The CS-18 Project used match funds (Saving Newborn Lives [SNL], *Every Mother, Every Child* program) to purchase a limited amount of equipment and supplies. These were provided in order to upgrade facility readiness for maternal, and newborn care services. Telephones were installed for the DHS and in 19 CHCs, to support the linkage between communities and the district or facility hospitals (contacting an ambulance, receiving advice or direction) in the event of maternal or newborn emergency. A referral register was established to document referrals between CHCs and the DHS.

The indicator selected to measure this project outcome is unclear as stated. Communes do not themselves have on-site ambulances, or even necessarily a vehicle (motor-bike, bicycle) with which to physically transport a woman or infant to the District or Provincial Hospital. They do now have telephones with which they communicate with a higher level of care, and request ambulance transport. The FE team also received affirmation that the majority of hamlets had made arrangements for hammock transfer to the CHC (by hand-carry or between bicycles) in the event of emergency. The aggregate effect of this continuum of emergency care led the SC CS-18 team and the FE team to determine that this outcome had been achieved.

Figure 10. Increased Service Accessibility



The FE team conducted observation visits at each of the eight CHCs (four per district) that were visited. The facilities were in a generally poor state of repair, with inadequate infrastructure (water, waste disposal, furnishings) and little visual appeal. The neonatal resuscitation equipment (described above) was present in each center, and in good working order. CHC staff showed the FE team their written plans for monthly facility and outreach services, and confirmed that 24-hour emergency services were now available in each of these centers. Several of the centers had service statistics prominently posted on the walls, indicating trend data for certain morbidities (e.g., rate of malnutrition) and services (e.g., number of facility deliveries).

The DIP indicated that an endline HFA would be conducted (p. 17), but this was not done. However, the presence of these written service plans provides some evidence that participation in this project had some influence at district and CHC management levels that improved management and services. Nevertheless, unless the District Health Service dedicates resources to

facility and equipment maintenance and upgrades, even these small gains may be lost over the longer-term.

One hospital director commented:

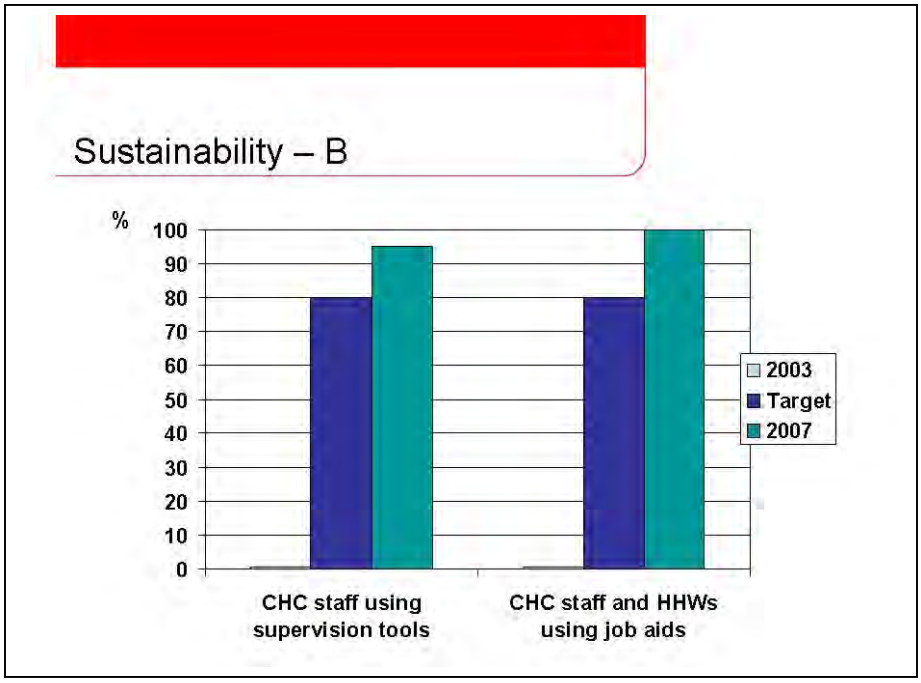
> "I think the project did a lot for the community, but very little was done for the hospital facility. We have nothing to show."

iv. Strengthening Health Worker Performance

The cascade training approach adopted by the project was considered an asset (a *best practice)*, because it reinforced learning by doing. There is some limited evidence that the training interventions increased the quality of care provided by health staff, after training. A report of a very successful neonatal resuscitation effort was included in the *State of the World's Mothers, 2007* document that is published by SC.

There are improvements in various indicators of service provision (e.g., an increase in number of ANC services provided via outreach services and an increase in the provision of TT vaccinations to pregnant women). There is also some limited evidence (trainer/supervisor verbal reports of outcomes) that the quality of care has improved (data obtained during supervision visits and documented via checklists that indicate that all components of a particular service have been included/conducted by the health worker). District health administrators expressed the opinion that the supervision system has been strengthened, and that this had had a positive effect on both service provision and quality of care. Two project indicators address this issue. The CS-18 Project exceeded its target on both indicators.

Figure 11. Improved Service Quality



v. Training

District and commune level health staff are considered *de facto* staff of the CS-18 Project. Therefore, additional information about the training strategy used by the CS-18 Projects, its scope, and outcomes of training, are presented in the discussion of "staff management and training", Section C.2. of this FE report. The training schedule and content that was provided to health staff are documented in the annual reports.

As previously noted, the cascade training model, that reinforced learning by doing, was considered an asset by District Health teams, and by the supervisors with whom the FE team spoke. There was an initial training of trainers (drawn from the Provincial and District Steering Committees). These individuals then trained CGs and commune health staff in best practices for maternal and newborn care, for both facility-based and outreach services. These included antenatal care, birth preparedness, skilled delivery care, postpartum care, newborn care and emergency obstetric and neonatal care. SNL, ACNM and WHO materials and training manuals were used for the purpose. Physicians were trained to provide the basic elements of comprehensive emergency obstetric care at the provincial hospital (surgical services are not available at the district level).

The training objectives were very ambitious in terms of sheer numbers of staff whose learning and clinical supervision needs had to be accommodated during training events. The effectiveness of the training was assessed in the short-term through the use of post-tests and clinical supervision checklists. These data were not reviewed by the FE team. Team members can make no comment about whether there were any immediate, short-term, gains in knowledge or practice scores. Longer-term gains are being followed through the supervision strategy. A fuller discussion is presented in Section C.3. of this report.

District Health Management representatives indicated that they recognized the need for training of new staff and for retraining of current staff. However, they indicated that financial resources to support these training events would be very limited after the CS-18 Project ends. They requested a "longer project period" and "continued support." (Additional detail is presented in Section C.2.).

3.d. Sustainability Strategy

The CS-18 used a self-structured, rather than formal sustainability design methodology at the DIP stage. The key strategy of the CS-18 sustainability plan (one of five project objectives) for health services was to strengthen partner capacity at provincial, district and commune levels. It was anticipated that provincial health authorities would have gained sufficient understanding and appreciation of the CS-18 approaches and interventions, that the provincial authorities would make plans to expand these to other districts in Quang Tri province. It was also anticipated that the district and commune workplans for the post-project period would include CS-18 approaches and activities. The sustainability assessment was to be accomplished by checking: monthly commune project review meeting minutes; monthly plans by communes and districts; district management board quarterly project review meeting notes; and supervision tools used for activities at the hamlet and commune levels. One provincial administrator noted:

"This is our regular work, so we will continue, using our annual budget process to fund the activities."

And also…

"We are already planning t use the supervisory and trainer systems. We don't do anything new. This is our usual job. Rather, we have improved how we do things, and this is the key to sustainability."

SC also planned to establish a "living university" in each of the two districts, to support both health systems strengthening and community behavior change. The concept of the LU is that "students" would include district, commune and hamlet health workers, and even beneficiaries. The "courses" would provide multi-level learning opportunities for visiting implementers from various levels. The "faculty" would be provincial and district MOH Master Trainers whose skills SC has developed through RTCCD trainers. The LU would be a legacy of the CS-18 Project, containing within it the essence of the CS-18 approaches and strategies that could serve as proxy for CS-18 over the longer term.

The key strategy of the CS-18 sustainability plan at the community level was to infuse information into the community, leaving behind a core of "positive people" and "positive practices". Sustainability assessment at the commune and hamlet levels was to be accomplished by the use of the monitoring tools that track community meetings and GMP activities.

These sustainability strategies and mechanisms are in place at the Province and District levels. The CS-18 Project did not alter or amend the already established MOH training and supervision design, therefore the MOH will sustain these activities in post-project years. However, MOH administrators were very clear that these particular activities would occur less frequently, and that other project interventions might not be sustained (e.g., conduct of NERP sessions).

They are also in place at the community level. The community meetings have become a very valued asset in most hamlets and communes, as evidenced by their continued conduct among communes that initiated this intervention in the earlier phases of the project. Additional community-based support groups (e.g., breastfeeding support groups, men's groups) were added to the project mix in later phases. CHC and community health workers who received training in earlier phases would need to learn from others about how to initiate and support these groups (cross-visits are one strategy that can be suggested) in their own community settings.

An interesting observation in several communes was the presence of a community map, kept in the home of the village leader. The map depicted the location of each household, and whether pregnant or newly delivered women, new babies, or malnourished children resided there. This level of awareness, if sustained, could serve as an important motivator for the community to remain vigilant about the health promoting activities that they had implemented for their community.

Service statistics confirm that an increased demand for services has been built within the community, particularly for ANC outreach, facility-based delivery and use of vitamin and

nutrient supplements. The "14-topic" information on maternal and neonatal care received by the community has set a new standard of expectation for both access and quality. The community already has a voice through the usual administrative structures (the People's Committee, Women's Union, Farmer's Union), and it can be reasonably anticipated that this mechanism will be used to express community opinion on their expectations of service.

The LU did not emerge. The development of this concept was a responsibility of RTCCD. CS-18 Project staff did not have sufficient personnel to pursue this specific work design after the RTCCD sub-grant was terminated. However, they accomplished the intended outcomes via various means, including development of the training manual, conducting and providing supervision to the cascade training courses, and supporting provincial and district trainers further to "cascade" the training down to commune and community levels.

Present plans are to create an adaptation of the LU approach – "model communes" supporting "model programs." Dakrong District selected the community meeting as a model for continued development and application of the community mobilization (CM) and PD approaches to poverty reduction programs. Huong Hoa District selected Breastfeeding Support Groups as a model for expansion to other districts and provinces. Information provided in the fourth annual report indicates that provincial officials have committed to funding travel costs related to supervision and support of the concept. This concept was one of several plans that were discussed in some detail at a sustainability workshop conducted among project partners in April 2007.

The phase-over plan for the end of the CS-18 Project is well underway. The sub-grants have all been completed. Provincial and district authorities have assumed financial responsibility for certain supplies (CDKs, iron pills). At least one additional sustainability meeting, and a dissemination meeting (to present findings and recommendations from the FE) are planned for the near future.

Provincial and district health administrators have a very strong working relationship with the VNCO staff, including the Sr. Child Survival Advisor and the current Program Manager (who will remain with the SC/VNCO on another assignment). It can be reasonably anticipated that in-person, telephone and e-mail contact will continue, as will planning for development of new proposals for future work in the province.

The CS-18 Project did not engage in financial management capacity-building strategies with project partners, other than building capacity to complete CS-18 financial records and reports. Health authorities did inform the FE team about their current actions and intentions to seek additional resources from provincial district re-budgeting, in order to meet their commitments (noted above), and also about their intention to use data about community morbidity indicators to seek additional, increased, allocations from the Central MOH authority.

The CS-18 Project selected two outcome indicators of sustainability. The target was exceeded for both of these.

A brief overview of the three special studies is provided in Section B.2.c. of this report. Findings from the community capacity assessment study suggest that the increased perception of

community self-efficacy, the sense of ownership of their own issues and problems expressed by community members, and the acknowledgment of information resources will serve to enhance sustainability of at least those activities that were most visibly and tangibly evident (e.g., EBF produced healthier and better nourished children; emergency preparedness and clean deliveries saved women's lives).

Figure 12. Communes Adopting CS-18 Approaches

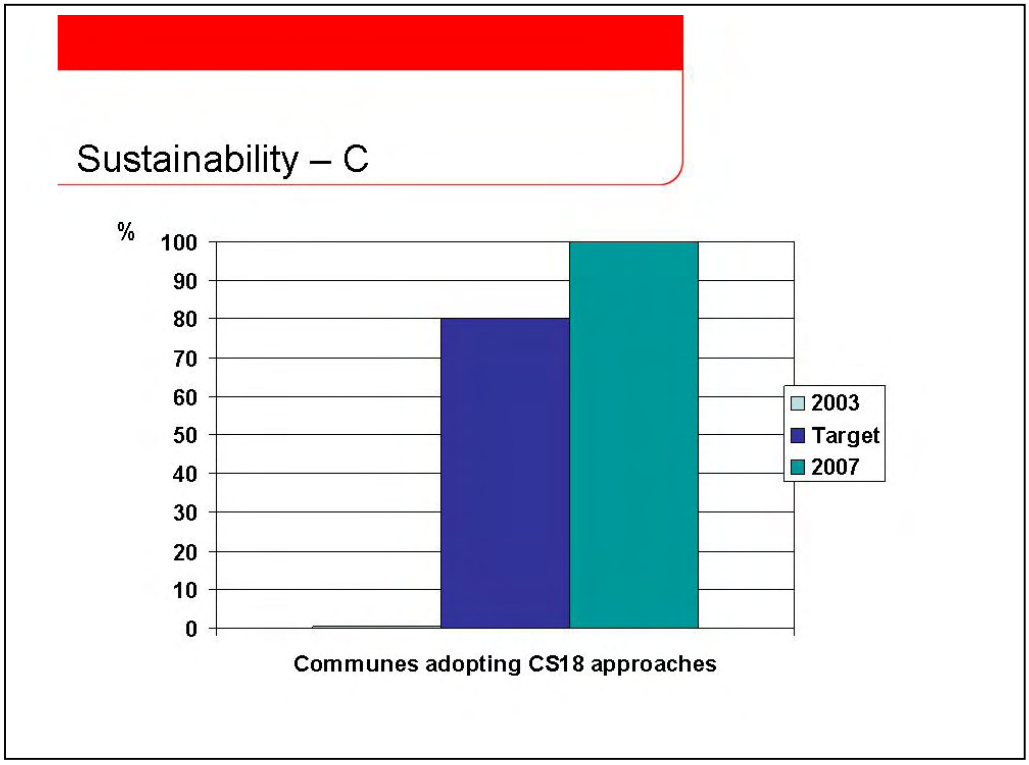
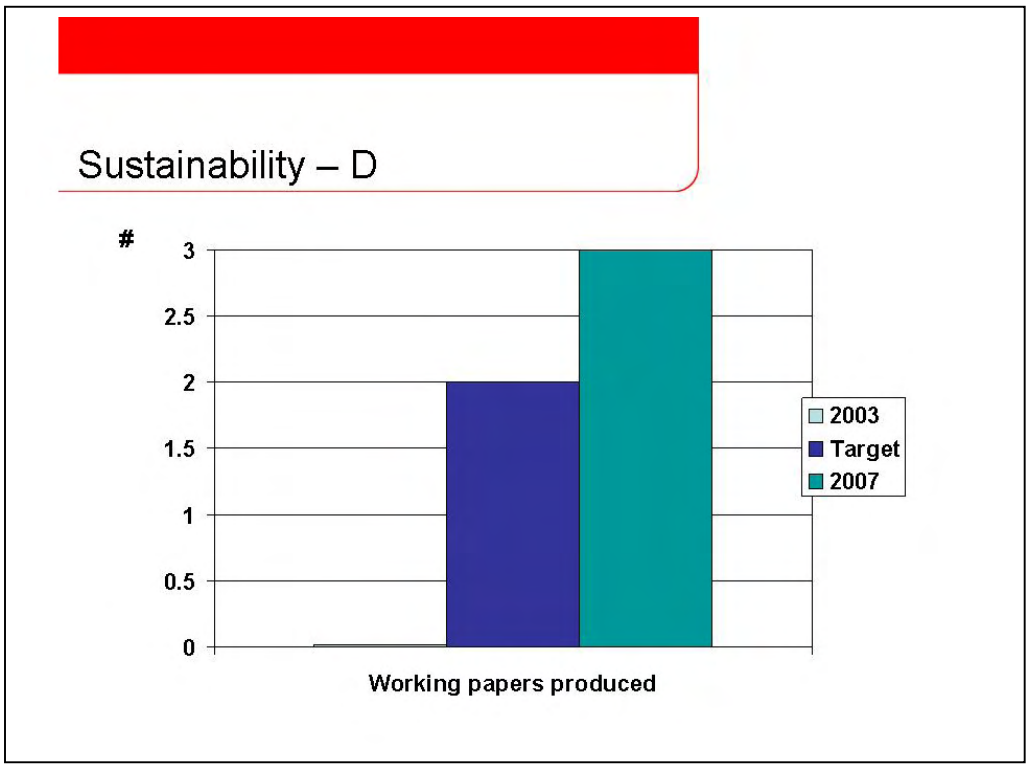


Figure 13. Working Papers Produced



SC completed the following Working Papers, which they hope to further develop into publications and/or a panel presentation at the Asia-Pacific Academic Consortium for Public Health, which will hold its annual scientific conference in Hanoi in 2008.

1. Pham Bich Ha, Nguyen Anh Vu, Nguyen Thi Huong, Truong Thi Xuan, David R. Marsh, Why Minority Mothers Do Not Practice Optimal Maternal, Newborn, and Child Health Behaviors In Quang Tri Province, Viet Nam: A Baseline Behavioral Determinants Study, SAVE THE CHILDREN CS-18 WORKING PAPER SERIES: NO. 1, Save the Children, Hanoi, April 16, 2003.

2. David R. Marsh, Pham Bich Ha, Tran Thu Kiem, Judith Fullerton, Community Capacity in Quang Tri Province, Vietnam – A Measurement Pilot-Test During the Final Evaluation of a Five-Year Child Survival Project, SAVE THE CHILDREN CS-18 WORKING PAPER SERIES: NO 2, Save the Children, Hanoi, Vietnam September 8, 2007.

3. David R. Marsh, Vu Ngoc Khanh, Pham Bich Ha, Tran Thi Kiem, Nguyen Anh Vu, Emlyn Jones, Acceptability, Feasibility, Quality, Effect, and Sustainability of a "PD-Plus" Approach for Improving Newborn, Child, and Maternal Care in Quang Tri Province, SAVE THE CHILDREN CS-18 WORKING PAPER SERIES: NO 3, Save the Children, Hanoi, Vietnam December 19, 2007.

C. Project Management

C.1. Planning

The project planning process was initiated by Child Survival Advisors and managers in the SC Home Office. The project was designed as an evolution of a number of approaches that SC had developed, implemented and tested in a number of Southeast Asian (SEA) countries, and among the Vietnamese majority. These included the PD/Hearth approach for nutrition rehabilitation, previously implemented in Vietnam low-land populations; the PD approach for improved newborn care, previously pilot tested in Pakistan; breastfeeding support groups, based on then-current activities in which SC was engaged with LINKAGES; the Living University method for joint health system strengthening and community demand mobilization, building on SC's nation-wide experience in Vietnam; a behavior change approach for ethnic populations that was being developed in partnership with PATH; and a further application of safe motherhood concepts in which SC was then engaged in the target province. This vision was described by the then-SC/Vietnam Country Director as SC's emergence (its "breakout" and "coming out") as an NGO serving both majority and minority populations in Vietnam.

The SC/VNCO staff was fully engaged in consultation and discussion about the various project interventions and activities that were proposed. Officials of the Quang Tri Province MOH were also active participants in the planning process. One key informant stated that it would have been valuable to include representatives from the MOH central level, as that might have helped set the agenda for provincial expansion of successful models and strategies.

The former Country Director stated that in his opinion, while the DIP planning process was *inclusive*, the Vietnamese planning counterparts did not take active ownership of the planning process. They provided the encouragement and affirmation that led the planning team to believe that each of the proposed interventions could be adopted or adapted in the provincial context.

Key informants indicated that there may have been a gap in critical analysis of the community context. For example, the planning process failed to fully anticipate the interactive effects of factors that were known to exist in the community, such as food insecurity, lack of clean water, poor hygiene and sanitation, and the prevalence of co-morbidities, such as diarrhea, in the districts. It also failed to appreciate the geographic distances between the 36 communes, the geographical difficulty in reaching remote communes, the language barriers between beneficiaries for BCC interventions, and the lack of sufficient human resources at district level, which made it impossible to conduct activities in all settings in a concurrent timeframe. These factors had a major negative impact on the effectiveness of implementation of the three largest components of the project. In addition, food insecurity is a barrier for the Hearth nutrition rehabilitation methodology and for people who wish to apply what they learned at the Hearth in their own homes. These constraints were noted (and more fully appreciated) in the earliest years of the project, and required major programmatic shifts in the final years (Please see the fuller discussion in Section B.2.b.). It also required that the project workplan be implemented in stages, leaving very little time for the process of behavior change to occur within communities that received attention in the later years of the project. On the other hand, endline data show favorable results of positive behavior changes, by project phase.

The Vietnamese NGO, RTCCD was named as a project implementation partner based on its prior experience in Huong Hoa. RTCCD was to be tasked with the development of the training manual and conducting training on how to conduct community meetings and NERP sessions. Project documents (proposal and DIP) indicate that three RTCCD members were participants in the DIP workshop (facilitators and organizers). The DIP is unclear about the degree to which the capacity of RTCCD to conduct the intended activities was assessed prior to their selection as a project partner. FE informants indicated that their capacity was "assumed" largely on the basis of their performance in other sector activities (community development and training in the areas of agriculture, education, micro-finance), and on the basis of a prior positive collaboration working on a health-focused project. It must also be assumed that RTCCD was itself not forthcoming about the very limited content-specific experience of the staff that they assigned to design the training courses. One key informant stated that the RTCCD organization was inflexible, and unwilling to change its approach. They wanted to replicate what they had already done well in other projects. This led to a very serious conflict in the early years of project intervention, as the organization was unable to perform to any quality standard. The partnership had to be dissolved and the workload assumed by SC/VNCO staff members.

The ten objectives established for the DIP workshop were comprehensive. It could reasonably have been expected that accomplishment of each objective would have led to clear understanding of what the CS-18 Project intended to accomplish, and the role of all project participants in the effort. Planning for the DIP workshop, in this instance, would have benefited by a preliminary meeting of all partners where a capacity self-assessment could have been conducted. The question "Can WE do this?" could have preceded the commitment to implementation. An alternative approach would have been that SC's Home Office or SC/VNCO conduct an organizational capacity assessment of partners prior to the partnership buy-in, even if the scope of the assessment were limited to the specific role that partners were expected to assume. It is noted that this activity did, in fact, occur to some degree, but as a post-planning activity (DIP, page 13), but RTCCD was not a participant in that process. This could be characterized as a *gap* in the DIP planning process.

A brief facility survey and a comprehensive household survey generated information that supported the need for the specific interventions and activities that were proposed for project implementation. A behavioral determinants study was also conducted in the interest of generating information about the internal (e.g., knowledge, beliefs, confidence) and external (e.g., norms, time) factors that were likely to affect, influence and perhaps constrain the effectiveness of BCC interventions. The project workplan and project management plan that emerged from the DIP process were clear and comprehensive. Certain targets were adjusted based on this information.

C. 2. Staff Training

Enhancement of knowledge and skills of project and partner staff in the project intervention content domains (maternal and newborn nutrition, nutrition rehabilitation, pregnancy, birth and postpartum care) was fundamental to the success of the project. It was also a major project intervention.

The CS-18 Project *staff* is few in number, but has included, over the life of the project, the Director of Health Programs (a medical doctor), two Project Managers (doctor and midwife), a project Field Officer, and a part-time Project Officer (a medical doctor, with specialty training in food science and nutrition). These individuals were prepared for their positions on the CS-18 Project through prior education and employment, including prior involvement with other maternal/newborn and nutrition programs conducted by SC/VNCO (e.g., the Saving Newborn Lives Initiative). There was no specific training given to any of these project staff members to assume their oversight for CS-18 technical content, but each of them actively participated in the teaching and learning (training) activities conducted by the project. Additional "on the job" training was obtained by one or more of these project staff through participation in skills building workshops such as the Program Learning Group (an annual meeting of health and nutrition staff conducted by SC's Asia Regional Office) and a programs on grants management. Specific training in M&E was offered in a workshop designed for CS-18 staff by the Sr. Child Survival Advisor.

The *partner staff* is more difficult to define. There are two individuals in each district who receive a monthly stipend for their work on the CS-18 Project: a Project Secretary (at 75-85% effort) and an Accountant (at approximately 25% effort). The Project Secretary for Huong Hoa District is a midwife. The Project Secretary for Dakrong District, a midwife, has recently been reassigned, and has very recently (2007) been replaced by an Assistant Doctor. Each of these individuals was selected and assigned to CS-18 Project activities by the District Health Service, on the basis of prior learning and experience. The midwives were full participants in the CS-18 training activities conducted by the project, and serve as supervisors for project activities.

However, CS-18 Project personnel consider that all district health staff (Provincial and District Hospital and commune midwives) are *de facto* "staff" of the CS-18 Project. All (100%) of midwives received explicit training. Approximately 50% of the commune, district and province nursing and medical staff (obstetricians and pediatrician) participated in some training activities. Obstetricians received EOC and safe motherhood training and updates in newborn care and the techniques of supportive supervision. Midwives received training on safe motherhood, clean delivery, updates on newborn care, the techniques of supportive supervision, and communication skills. Hospital-based clinical experience was included in the training curriculum. Community Guides received training on meeting facilitation skills, and the content of the 14 topics that are presented at community meetings.

Competency-based training and evaluation were envisioned in the original design of the cascade training model and the training materials. Evaluation methods actually implemented included pre-test and post-test measures, and performance observations using clinical checklists. The training methodology emphasized the practical rather than the theoretical. It maximized the use of job aids (e.g., models for resuscitation, breast models for EBF) and training materials (training manual, IEC materials, and videos).

CS-18 Project staff did not provide any additional training (new topics) or refresher training (topics taught in initial training) over the life of the project. The assessment of knowledge, skills and competencies over the life of the project is assessed via the strategy for supportive supervision, using clinical checklists (Please see the discussion in section C.3.).

The Community Guides are also considered *de facto* staff of the CS-18 Project, tasked with the major responsibility of conducting all BCC activities at the hamlet level, including the organization and facilitation of community meetings, in concert with a member of the commune health staff (who support, supervise, evaluate and provide feedback). Training methods used to prepare the CGs included "classroom" education in maternal newborn care (14 topics) and maternal and child nutrition. A video was developed to demonstrate the use of meeting facilitation skills. A video that teaches manual expression of breast milk and the technique of newborn/young child cup feeding was created more recently. Interviews with the CGs indicate that they feel both confident and competent to conduct their activities, and feel particularly supported in their efforts by the input (supervision and feedback) provided by commune health staff.

It is of particular note that these CGs cited several examples of how they applied the community meeting model to other issues and topics (i.e., *application in another context.* For example, one district was grappling with an outbreak of hoof and mouth disease. The community meeting model was used as the approach to deriving community solutions to this problem. CGs also cited the topics of malaria and diarrhea as additional topics that were discussed in various community meetings.

Training was a major agenda item for the CS-18 Project, and given the scope of the agenda (the sheer numbers of individuals at all levels that needed to be included in various training activities) had to be conducted in several phases.

- Training of 20 trainers occurred in Phase 1 and Phase 2 and an additional 15 in Phase 3.
- Topical training (MCN and nutrition topic) occurred by phase, and 900 CGs received this training.
- Communication and facilitation skills training began during Phase 3, with 16 trainers and 500 CG learners.
- Forty (40) trainers were trained in Phase 4 to conduct the breastfeeding support group interventions; they in turn trained 70 CGs.
- Supportive supervision training was provided for 36 midwives across all phases. Training in supportive supervision was provided for 40 provincial and district supervisors.

CS-18 Project and partner staff state that "more training" would always be helpful. Provincial and District MOH personnel expressly request more training – and particularly for new staff who entered service in the district in the period of time following the training events. District MOH administrators stated their support of the training models and the training materials, and expressed their intention to reinforce the learning through the supportive supervision process; however they did not commit to accepting responsibility for conducting further training initiatives for new staff, or refresher training on the CS-18 topics. Therefore, while it can be said that CS-18 did in fact devote sufficient time, attention, and financial resources to the initial training agenda, the effect is likely to be muted in the short term, as it is unlikely that much (if any) refresher training, topical updates, or intensive training of new staff will be conducted by the project's MOH partners.

Lessons learned from earlier training efforts influenced the later training efforts. The lessons learned from the initial training efforts, and subsequent supervision of trained staff included the following:

- A training video on facilitation skills (developed in part as an outcome of an MTE observation that meeting participants were too passive) was a useful approach to demonstrating the content. However, the particular video was not effective in its original version. It would benefit by being broken into several smaller segments, demonstrating selected skills.[4]
- The clinical checklists used in supervision of commune health staff and CGs required modification in order to provide an opportunity for documentation of the new skills that were being assessed.

A single training approach and set of training materials was developed and used for all learners within designated health cadres (e.g., for doctors or midwives). However, the learners were quite diverse in the level of prior knowledge and skill. For example many of the commune "midwives" were actually "primary midwives" (high school graduates with one year of midwifery education), rather than "secondary midwives" (three years of formal midwifery education)[5]. Other learners (called "midwives" and assigned the relevant tasks) were actually "assistant doctors", who receive apprenticeship training rather than formal education. The topics addressed in the CS-18 curriculum were well within the scope of practice and job responsibilities of these various health cadres[6]. However, it may be important for programs that offer "refresher training" or "knowledge and skills updates" to test the *assumption* that all learners have previously acquired a common core of information and abilities.

It should also be noted that all training was conducted in the language of the Kinh majority. It is uncertain whether any of the commune health staff are proficient in the minority languages of the people that they serve.

[4] Post FE information indicates that action has already been taken to implement this recommendation.

[5] The Province is conducting a pilot program to train community-based "hamlet midwives" in a nine-month curriculum of study. This new cadre of "midwife" would not meet the international definition of a midwife, as promulgated by the World Health Organization and the International Confederation of Midwives. However, depending on the curriculum, this practitioner may meet WHO minimum criteria of a skilled birth attendant. The WHO itself has issued a caution to countries about the risk that is inherent in diverting resources away from the training of professional birth attendant cadres for the purpose of supporting this type of interim or "stop-gap" health manpower strategy.

[6] A single exception is noted. The DIP indicates that manual removal of the placenta would be included in the training curriculum; however, it does not appear in the topic index in the training manual. This skill would certainly *not* be appropriate for lesser skilled practitioners to perform, particularly in the absence of comprehensive EOC services at the district level.

The following recommendations were offered by district health administrators.

Recommendations

- Refresher training should be planned for district and commune staff, with a focus on clinical updates for new evidence-based practices.
- Specific plans should be made to provide complete training and more intensive supervision in the first year of service for new staff members.
- Some commune health staff, and specifically, the commune midwives, should receive training of trainers (TOT) to augment the training and supervision workforce at the provincial and district levels.

C. 3. Supervision of Project Staff

CS-18 VNCO Project Manager (based in Hanoi) is directly supervised by the Director of Health and Nutrition Programs. The Director is supervised by the VNCO Country Director.

There was substantial staff turnover during the life of the project (Please see Section C.4.). There were periods of time when positions were unfilled. There was also limited opportunity for exchange of information at the time of staff transition, given the intensity of project activities that had to be managed with the limited staff available. The MTE notes the information gap that resulted from the limited orientation received by the Project Manager who assumed her position in mid-phase of project activities. The MTE team suggested that the nutrition rehabilitation intervention (specifically the NERP activities) might have been redirected more quickly if there had been more intensive supervision of the orientation process for new staff.

The Project Manager, in turn, works collaboratively with the Project Secretaries in the districts who coordinate aspects of the supervision strategy for the CS-18 *de facto* project staff, i.e., the province and district supervisors and trainers and the Community Guides (See Section C.2.). The supervision system is itself a "cascade" system, with provincial oversight of district supervisors, who in turn supervise commune staff, who in their turn supervise the health workers at the hamlet level. A number of checklists have been developed to document the supervisors' observations. A particular asset of the supervisory system is that each supervisor is responsible for a particular commune. This allows the supervisor to become very familiar with the staff, allowing for the opportunity to provide consistent review and feedback.

The supervisory system for the CS-18 Project district and commune health staff and the hamlet health workers was based on the exiting MOH supervision strategy. The major components of the supervision system are, therefore, already fully institutionalized and likely to be sustained. However, the CS-18 Project extended the supervision strategy from commune to hamlet level, creating an extra link that did not previously exist in the MOH strategy. The extra burden of work may prove to be a challenge to sustain in the post-project period, as there are few commune staff members to serve as supervisors of hamlet health workers.
Interviews conducted among the trainers/supervisors indicate that they believe that their knowledge and skills have been enhanced and that they have acquired new skills in the

techniques of supportive supervision, and that they feel confident and competent to apply these skills in practice. One supervisor observed:

> "Before we did once a year evaluation. Now we do supportive supervision. This has increased the rate of change. When we looked at providers once each year they were less likely to adopt a change."

Interviews conducted among the commune midwives indicate that they have acquired new skills in selected topics in maternal and newborn care, and that they receive regular reinforcement of their clinical competency through the feedback (and corrective remediation, if necessary) that they receive through the supervision process. However, they specifically requested additional and refresher training. Supervisors noted that they did the following things during supervision visits, in addition to observing the process of care.

> "We support the commune midwife to do ANC and other skills by looking at what they are doing and providing feedback. We check the record book at the CHC to ensure that data are filled in. We look at the way the drug cabinet and equipment are arranged. We check infection prevention procedures."

District health administrators spoke very positively about the supervision strategy, noting their satisfaction with the use of checklists for assessment and documentation, and the emphasis on providing timely feedback. They applauded the model as one that should be extended to other districts, and could be recommended for use by other provincial health authorities, although action had not yet been taken to do so.

The district health administrators noted the fact that most supervisors are not fluent in the minority languages spoken in the district, which was a major barrier to effective supervision in those instances where translation could not be accommodated. This was a particular problem when community meetings were conducted in a minority language, when the session supervisor was unable to understand the messages being conveyed!

Administrators also noted that experience with use of the checklists had revealed a number of limitations to the current forms. District administrators offered the following recommendations for action.

Recommendations:

- The supervisory checklist for the community meeting activity needs review in order to improve the measurement of the quality of some facilitation skills.
- All other quality checklists need to be expanded to provide an opportunity to document each of the sources of data (e.g., record review or personal observation) that are reviewed during the supervision visit.

C. 4. Human Resources and Staff Management

The SC/VNCO has achieved a level of maturity in its Human Resource functions. Operational principles are defined. Personnel policies and job descriptions are in place. Annual performance reviews are conducted. A new Country Director was appointed in July 2007. This fact virtually ensures that all existing policies and procedures will be reviewed, as the CD engages in the process of orientation to his position.

The FE team was informed that the province and district health administration offices "work differently." One informant stated that she worked for the government for over a decade, and never had a written job description. The FE team did not pursue this topic further with MOH personnel, as it was not within the sphere of the project's influence.

CS-18 VNCO staff and its District Health staff partners expressed great enthusiasm about and support for the project. They were able to cite specific anecdotal evidence of the positive outcomes that were being achieved in the majority of the communes. They were also quite aware of the barriers and constraints that had limited the effectiveness of project interventions in other, less successful communes. They had already generated ideas and suggestions for modifications of CS-18 approaches that might serve to offset these adverse circumstances, in anticipation of the continuation of project activities in the post-project years.

However, *VNCO staff* also acknowledged specific difficulties that had been encountered over the life of the project that had created substantial challenges to effective implementation of project activities, negatively affected staff morale, and limited the effectiveness of certain project interventions. These included:

- The inability of original project partner RTCCD to perform to standard, and the resulting dissolution of that partnership, created a substantially increased workload for CS-18 staff, and inevitably delayed the training timeline.
- The CS-18 Project was understaffed at the VNCO and field level. There were few sources of peer support (e.g., sharing information and workload). These factors contributed to some degree to the decision of at least one staff member to resign from his position.
- There were four major staff changes over the life of the project. These occurred in the 2nd, third and fourth years of the project. Each of these staff changes increased the workload for all others.
- Staff turnover and reorientation caused further delays in project implementation. The learning curve of new staff had to be accommodated. The MTE report documents at least one instance in which the learning gap of a staff member may have contributed to misdirection of the NERP activities.
- The sheer volume of training events and intervention activities (e.g., community meetings, support groups, NERP sessions) required staff to reconsider the project timeline, and to develop a staged "phase-in" design for project implementation. The need to replicate "original" activities (e.g., training events) in subsequent stages meant that "reinforcement" events (e.g., refresher training) could not be accommodated.

The District Health Service was re-structured in the fourth project year. This created an additional layer of complexity to the process by which CS-18 and partner staff planned and received approval for certain project activities, i.e., administrative authority was now vested in two different individuals, in two different administrative offices. It also resulted in a reassignment of certain *project partner staff*. The Project Secretary in Dakrong District, who had worked with the project since its inception, was promoted to another position. Her duties were assumed by another individual who was less familiar with project activities, protocols and processes. There were also a number of changes in district and commune health staff (trainers and supervisors) due to resignations and reassignments. CS-18 provided supervision training for the new project implementers who were selected as replacements.

There has also been a few new staff assigned to the CHCs who have never received training to conduct project activities. *Project partner staff* turnover is certain and unpredictable. Nevertheless, unless the recommendations for continued training and supervision of staff are implemented over the longer term, the "training effect" of CS-18 activities will inevitably be diluted, and the quality of the supervision approach and strategy may be affected (Please see Sections C.2. and C.3.).

Plans have been made for staff transition at the end of the project. One CS-18 Project staff member (the Project Officer) has already left the project at the end of his contract (May 2007). The Project Manager will be reassigned to other projects implemented by the VNCO. The proportions of full-time effort contributed by the Health and Nutrition Program Director, the Province Field Office Program Coordinator and the Program Assistant will be absorbed into the VNCO general budget.

C.5. Financial Management

Program and partner financial management policies and procedures were well delineated, well managed, and aligned with general accounting "best practice" principles and USAID regulations. SC/W conducted an orientation workshop for the VNCO accounting staff on CS-18/USAID regulations in the early years of the project. Accounting staff also attend regularly scheduled workshops conducted in the Asian region (by SC Asian Regional Office and/or by NGO coalitions) that focus on regulations and compliance. The VNCO has an information and documentation officer who oversees USAID compliance issues.

The CS-18 budget is managed in the VNCO, with back-up provided by SC/W. There was some lack of clarity among VNCO accounting staff about the actual level of approved funding, and a complete lack of understanding of the issue of match requirement. Match details and accounting were handled entirely at SC/W. This did create a critical knowledge gap at the VNCO both about the conceptual issue of match requirements, the various legitimate match sources, and the actual detail of accountability for recording and reporting on the issue.

The sub-grant budget for the MOH partner is managed by the field office accountant, with back-up provided by the VNCO. Both CS-18 and MOH partners stated that it took "too much time" to receive approvals for the project and sub-grant agreements, and that this had some degree of negative impact on program start-up.

The Financial Manager and Accountants acknowledged that the MOH partner required assistance in the early years of the project to acquire the skill necessary to complete the sub-grant paperwork, and to generate the financial reports, which MOH administrators described as "too complicated." They were provided all of the necessary guidance and technical assistance (capacity building) required to bring their performance to standard. The sub-grant closed in May 2007. VNCO accounting staff conducted a final review of the accounts in August 2007. (VNCO accounting staff does not use the word "audit" with the MOH partners, but the review will follow general accounting procedures.)

The CS-18 sub-grant provided funds to support activities that were already elements of the MOH health service structure, but that required additional and more intensive effort related to project activities. The withdrawal of these funds will certainly have some effect on the ability of the MOH to sustain certain activities in the post-project year. MOH representatives described their plans for generating additional revenue for application to activities that had been emphasized during the CS-18 Project period.

The VNCO will not be directly engaged in any of these activities, and has no plans to finance any operations or activities after the project period. However, the VNCO is writing a number of proposals focused on health, nutrition, early childhood development and HIV/AIDS prevention that may be implemented in the province, and would build on the community-based infrastructure that was the key strategy of CS-18. The VNCO benefited from technical assistance (TA) provided by SC/W in both technical and financial matters. This included assistance to the VNCO to generate additional programming revenue. There was some consideration about the need to close the field office at the end of CS-18 and a few additional projects that have end-dates in 2007 or early 2008. However, there are no immediate plans to do so.

The five-year CS-18 cooperative agreement provided funding in the amount of $1.300, 000; with a 25% match of $433,342, for a total grant budget of $1,733,342. Match funds were obtained primarily from SC's complementary programs, Saving Newborn Lives, *Every Mother, Every Child* project, that provided support for development of training materials. There was no major re-budgeting over the life of the project. Funds originally designated for the FE had to be reallocated to cover expenses related to the submission of an amendment to the MTE. Therefore, supplementary, private, funding was obtained to augment the budget for expenses related to the final evaluation. These funds were also assigned to the match.

Table 5. Budget Expenses

Budget Item	Budgeted amount	Booked to date
Direct	$1,111,301	
ICR	$188,699	
Total Funds	$1,300,000	$1,293,430 (booked through June, 2007)
Burn rate		99%
Match	$433,342	$411,340 (booked through March 2007)
Match rate to date		95%

C. 6. Logistics

There was very little activity in terms of logistical procurement and supply during CS-18. The project did provide a basic package of supplies and equipment related to delivery and newborn care (33 items) for each commune. The FE team conducted observations in each CHC visited during the fieldwork and confirmed that equipment was present and in good working order, in each site.

CS-18 also provided minor financial support to project partners for purchase of iron/folate tablets, but in accord with USAID regulations, matching funds were used for this purpose. The major "new" contribution of the MOH project partner, stemming from CS-18 activity, is the supply and distribution of clean delivery kits to all CHCs for redistribution to mothers who anticipate a home delivery. The Provincial MOH has recognized the need to standardize the content of the CDKs, and has committed to finding the funds to ensure a fully supply. They also committed to sustaining the supply of iron tables and Vitamin A capsules that they believe is already in sufficient supply at the CHCs, but has not been well distributed through the hamlet health worker mechanism.

C.7. Information Management

The information management process and system has greatly evolved over the life of the project. The current personnel and system are well suited and equipped to document project activities, track the progress of indicators toward targets, and generate information that can be used for decision-making.

The baseline and endline KPC surveys were conducted by external consultant teams, under the auspices of and with leadership from the Hanoi School of Public Health. The team leader of the endline survey and the VNCO Monitoring and Evaluation (M&E) specialist both stated the belief that external leadership for the KPC surveys were a critical element contributing to their validity and perception of lack of bias. The KPC consultant acknowledged that these surveys were particularly challenging to conduct. The team faced problems in gaining access to some of the randomly selected geographic locations, difficulty in finding women targeted for interviews, as they were engaged in labor in their farm fields, and particular difficulties in translation of the standardized KPC questions, first into Vietnamese, and then into the ethnic language of the minority population (which does not have a common written form). This increased the complexity of training for the interview staff as well. Nevertheless reliable baseline data were generated for use in program planning, and reliable endline data are available for comparison and assessment of outcome, effect or impact.

The responsibility for data collection and tracking of project activities was a responsibility shared by all project implementers, from hamlet to district levels. A series of forms (actually books/journals) were developed which were used to document hamlet activities (one for maternal child health, one for population, and a third for growth monitoring and family planning). The forms were modified at least two times over the life of the project to improve their clarity and ease of use. These forms provide space for counting numbers, and naming types of activities in which the health worker and community member(s) have engaged. These forms are taken to the

CHC on a monthly basis. They are reviewed for completeness by the CHC personnel, who, in turn, provide summary data to their supervisor. The supervisor conducts a second check (for quality and completeness), provides feedback for improvement of quality, and requests augmentation of data as necessary. The supervisor then transmits the forms to the district personnel responsible for data entry. Data reports are provided to district health administrators, who review them for planning purposes. Reports are also provided to CS-18 personnel on a quarterly basis. Supervision checklists for monitoring the performance of health personnel are an additional element of the data monitoring system that were strengthened by the project.

The wisdom of this data collection and management system was that it built on existing MOH strategies that extended from the district to the CHC level. The CS-18 Project extended data monitoring to the hamlet level for CS-18 Project purposes, and strengthened the supervision system.

Project data were clearly used for making project management decisions. This is particularly true of the redesign of the nutrition rehabilitation component of the project. Project monitoring data were reconfirmed by independent assessments conducted by the MTE team. Both assessments clearly indicated that this intervention was “off-track” and that the approach should be reconsidered. The redesign was based on the documented incidence of malnutrition within communes and districts. NERP activities were then concentrated in those areas where there was both need and likelihood of impact.

At the mid-point of the CS-18 Project the VNCO created the position of Monitoring and Evaluation Specialist, who provided part-time support to the CS-18 Project. This new cross cutting position was intended to strengthen M&E across all VNCO health projects, and to strengthen the organizational capacity to standardize its approach to measurement of common program performance indicators. The M&E Specialist is an M.D., with academic preparation for the statistical and research aspects of his position.

The M&E Specialist has made a significant and substantial contribution to the health information management system (HIMS) for the MOH project partners that will promote quality data management over the long term. He wrote a software program for use by district and province personnel that merges common and additional CS-18 Project indicator data into the HMIS system. He believed that merging the systems would not only ensure better quality (more complete, more accurate) data, but would also institutionalize the CS-18 indicators, as a means of promoting sustainability of their measurement. The ACCESS-based program is very user-friendly, and is notable for the numerous data error checks, that limit the amount of missing data. The program has a built-in report generation function that creates charts and graphs (aggregate statistics and trend data) for immediate use in program planning.

The M&E Specialist provided training to a core team of province data management personnel, who are now prepared to conduct on-going training in the use of the system. The M&E Specialist has also spoken with representatives at the MOH central level, who are considering adoption of the system country-wide.

Provincial administrators noted that their annual budgets depend in part on the recognition of need specific to the province. Administrators were very pleased to have the availability and quality of data on certain maternal and newborn indicators, generated through CS-18 activities, as foundation for their advocacy for larger allocation of funds. One provincial administrator noted:

> "The new M&E system helps us feel more confident because we have accurate data that we use for MCH and can apply to other projects."

CS-18 has taken great care to keep project partners (from province to hamlet levels) informed of its activities, and the outcomes of the project interventions. The results of three special studies conducted by the project, and discussed with project partners, are reported in Section 2.c. of this report.

Interviews conducted among community members (more fully detailed in the project intervention sections of this report) clearly indicate that community members are aware of "change". The changing behaviors related to exclusive breastfeeding, and greater involvement on men in supporting care processes for women and newborns, are particular, significant and substantial examples of community awareness. provincial administrators cite instances in which they have shared information about project indicators and trends with officials of other Provinces and with central health authorities.

C.8. Technical and Administrative Support

CS-18 received technical support for project activities from both external and internal sources. *External* support for the conduct of the KPC baseline and endline surveys was discussed in Section C.7. *Internal* TA was provided in the design and early planning stages of the process by several SC/W staff who had expertise in MCN activities, from earlier work with *Saving Newborn Lives.* They shared curriculum and training materials with PATH and with the CS-18 Project staff, who had to assume responsibility for development of the training materials after the dissolution of the partnership with RTCCD. *Internal* TA was also offered at several points in the project by the SC/W-based Sr. Child Survival Advisor (Dr. David Marsh). He was involved in preparation and planning for the DIP workshop, and a co-author of the report. He assisted with the design and conduct of the various Operations Research (OR) studies. He developed and taught a course on M&E fundamentals for all program staff in 2005. This training influenced, so some degree, the decision by the VNCO to create the overarching M&E Specialist position, to strengthen data management and utilization capacity. The project also benefited from *internal* TA that was provided to the VNCO accounting staff, by the SC Asia Regional Office, which provided information, guidance, and even direct services, to the VNCO office with respect to USAID regulations and compliance.

The MTE report questions whether more supervision and guidance (from either internal or external sources) might have resulted in earlier intervention into the NERP programming, and perhaps placed it back "on track" (or initiated the redesign) at an earlier stage of the project. It is the case that the Program Manager (a midwife, appointed to the position in the third project year) had little understanding of technical aspects of the PD/Hearth and NERP strategies. She was

unable to identify problems and offer remedial suggestions to staff implementers, who were themselves not proficient in the methodology. A similar situation occurred in 2004 at the time of appointment of a new Health Program Manager in the VNCO. This staff member was also unfamiliar with the methodologies of the CS-18 Project, for which he had administrative responsibilities.

These situations are perhaps examples of the implicit need for technical assistance for which staff did not recognize the need, and therefore did not request it. It does, however, suggests that SC/W should have been more "in contact" at the time of such important staff position changes, taking initiative to explore the need for TA to support the staff transition. It is an important "lesson learned" for this project that all program staff should have specific orientation to both the theory and the practice aspects of intervention programming. This assessment must be conducted among all new staff members that join a project over its lifetime.

The Sr. Health Specialist estimates that he spends on average, several hours per month in direct communication (e-mail or telephone) with CS-18 Project staff. He made four trips to the country, of one to two weeks duration each, in direct support of CS-18 Project activities (the DIP, an M&E and OR workshop, the MTE amendment and the FE).

The VNCO Director of Health Programs spends up to 40% of effort (aggregate) on CS-18 activities. The Hanoi-based Program Manager is focused full-time on providing support to and management of field office activities.

Recommendation

- SC/W should implement strict guidelines with respect to the responsibility of Country Directors to notify relevant technical backstops about changes in key program staff. Technical backstops should then participate in orientation of new staff, and explore their level of understanding of the theory and practical applications of program intervention strategies. Training upgrades should be provided or arranged, as indicated.

C.9. Mission Collaboration

USAID maintains an "office" in Vietnam, and has not yet upgraded to full Mission status. USAID Vietnam does not have a health program. Nonetheless, Save the Children has maintained close ties with USAID in Hanoi since the design and submission stage of the CS-18 Project. A letter of strong support was submitted by USAID Vietnam at the time of submission of the proposal. Periodic updates were provided to the designated USAID representative, who is now Mr. Ngo Tien Loi, Development Assistance Specialist. Mr. Loi participated as a full member/participant on the final evaluation team, including all field work activities.

The VNCO Country Director(s) and the current Director of Health Programs meet regularly with designated USAID Vietnam personnel to discuss programming opportunities. USAID Vietnam has received PEPFAR funds. The Director is exploring opportunities to integrate sexual and

reproductive health activities within HIV/AIDS prevention programming. However, at present, there is no Mission or bilateral mechanism for continued support of CS-18 Project activities.

C. 10. Management Lessons Learned

Several issues were identified by the Project team that could be considered *lessons learned* for future programming design and management. These include:

- *Planning* for the CS-18 program was participatory and inclusive. However the lack of inquiry (on the part of SC) and of disclosure (on the part of RTCCD) about the technical capacity of partner staff led to conflict and delay in project implementation. The grantee organization can be more proactive in seeking confirmation of this capacity, either through the conduct of formal capacity assessments or a more informal approach that requests "model documents" or other tangible evidence of knowledge and skills in the specific performance area.
- *Training* needs of partner staff were well anticipated. However, the training needs of project administrative personnel were not as effectively explored, and insufficient guidance and orientation was given to team members who joined the project after the planning phases. The project employed very theory-based interventions that were not fully appreciated by some staff who had responsibility for guiding the day-to-day implementation of the related activities. This issue can also be considered a *human resource* concern. The grantee organization can be more proactive in providing for capacity assessment and relevant in-service training for project staff.
- *Re-training* needs were not addressed by the project. All partner staff received a one-time training intervention, which did include the training of trainers and built capacity for future training initiatives. However, the project did not advocate that provincial health authorities act on their responsibility to conduct such initial training for new health staff, or to accommodate re-training of already trained staff who could not demonstrate quality performance, as assessed during supervision visits and documented on quality improvement checklists. The grantee organization could consider building this responsibility into a "health partner deliverable" over the life of the project, when it would be possible to offer technical assistance and support for that performance objective.
- *Financial management* policies and procedures for the CS-18 Project followed general SC guidelines and strategies. However, VNCO accounting staff was not oriented to the conceptual issue of match requirements for the program, and never handled the detail of this accounting. This created both a knowledge and practice gap. The grantee organization should address this issue through both theoretical and practical accounting training in the issue of match documentation (recording and reporting).
- *Technical support* was provided for programming by a Sr. Child Survival Advisor, highly skilled in all aspects of technical programming. The Health Advisor (HA) made several trips to the country to provide direct oversight to the project. However, at a critical project mid-point, the HA was not notified of the resignation of a key project staff member. The HA could not, therefore, participate in interview, capacity assessment, or training (as experience proved was indicated) of the new employee, related to administrative responsibilities and field activities. The grantee organization and field staff need to be very explicit and clear about expectations for keeping each other well informed on critical *human resource, training and technical support* issues.

D. Other Issues Identified by the Team

Not applicable

E. Conclusions and Recommendations

The CS-18 Project addressed each of its MCH and breastfeeding objectives through implementation of programmatic strategies and activities that proved to be very effective for their purpose. The effectiveness of strategies designed for the package of nutrition interventions were constrained by the specific characteristics of this community, which greatly limited the achievement of targeted outcomes. However, the strategies themselves (the PD and *HEARTH* approaches, applied within a community meeting BCC design) were well received by most community residents, and have already been replicated by Provincial Health partners and the communities in other applications.

The project met or achieved its performance target for the following objectives:

Increased use of health services

- Exceeded an already high baseline target for percent of women who received two doses of tetanus toxoid vaccine;
- Exceeded (prevalence ratio 2.2) the target for percent of women who used 100 iron-folate tables during pregnancy;
- Exceeded (more than doubled) the target for percent of women and newborns who received postnatal care within the first week of birth; and
- Exceeded (prevalence ratio 2.5) the target for percent of mothers who received postpartum Vitamin A supplementation within the first month of delivery.

Increased practice of key household health behaviors

- Exceeded the target for percent of women who delivered outside of facilities, who demonstrated clean umbilical cord cutting;
- Exceeded the already high baseline target for increasing the breastfeeding of babies within the first hour of life;
- Met the target for promotion of exclusive breastfeeding of infants up to age four months;
- Exceeded already high baseline targets for feeding of children (two meals each day for children six-eight months old; three meals each day for children aged 9-11 months old); and
- Exceeded (doubled) the targets for increasing the variety of food groups each day (although the level of achievement was still unsatisfactory in a practical sense).

Increased service quality

- Achieved full scale (100%) on the target of promoting emergency transport within communities, through a combination of community design of emergency transport to CHCs, and the installation of telephones in 19 CHCs and two District Hospitals. Nevertheless, the fact that the majority of CHCs still lack telephone communication limits the interpretation of this accomplishment.

Improved service quality

- Exceeded (to full scale) an already high baseline target for promotion of the use of job aids (tools) for supervision of staff at the CHC; and
- Exceeded (to full scale) the proportion of CHC staff and hamlet health workers who used job aids to support their work (in this case, supervision tools).

Improved sustainability

- Exceeded (to full scale) the percent of communes who used data for planning (in this case, planning for application of the CM and BCC approaches to solution of other pressing community problems);
- Exceeded (to full scale) the promotion of interest on the part of provincial health authorities to adopt project approaches for other districts;
- Exceeded (to full scale) the promotion of interest on the part of commune leaders to adopt project approaches to the solution of other community problems; and
- Exceeded the project objective of dissemination of project approach details, including successes and challenges (three working papers produced).

The project had limited success in achieving its target on one project objective:

Improved health status of children under 5

- There was a demonstrable decrease in the proportion of children at less than both two and three standard deviations of weight for age. The intention of the project target (10%) is unclear. The project did achieve a reduction of 10% of the baseline figure. Given the challenging circumstances of the community context, even that small decrease is noteworthy.

The most important achievements of this project included the success in changing long-standing social and cultural traditions surrounding maternal and child care practices related to ANC, maternal and infant nutrition (including immediate and exclusive breastfeeding), and newborn care practices. These changes are documented in project indicators noted above. The following are some of the *lessons learned*.

- It is possible to change attitudes and practices regarding the place of birth, promoting facility-based birth in communities where home birth has a long history and tradition, if there is an enabling environment.
- It is possible to influence, even to change, prevalent social norms when new knowledge is imparted in a way that empowers all family members and encourages them to take action.

Project challenges included the overarching constraints that characterized the community itself. These factors (*lessons learned)* limited the impact that the project intended to have in nutritional rehabilitation of malnourished children, and the promotion of healthy eating practices.

- Planning for community-based interventions into food insecurity and nutritional rehabilitation should give careful consideration to community characteristics prior to selection of sites for conduct of such programming. Conditions of population size and food insecurity in the community will work against effectiveness of this particular approach.
- Multi-sectoral, and multi-partnered programming should be considered for implementation in communities that have high indicators of poverty and community constraint (e.g., water,

sanitation, disease prevalence), so that the interactive effects of multi-lateral interventions might generate greater community gain and impact.

Best practices evidenced in this project include:

- The *cascade training approach* adopted by the project for the training of project staff in MCN;
- *Breastfeeding support groups* which served both a practical ("positive practice model") and social (personal support) function, and a vehicle for addressing social norms about "women's work" and role;
- *Clean delivery strategies*, which served as a very effective interim strategy and proxy for facility-based delivery and skilled birth attendance, in an area where "scale" on both of those indicators will not be achieved in any near future; and
- *ANC outreach* which served not only the proximal purpose of increasing ANC attendance and receipt of services, but also the distal purpose of a BCC mechanism for all related perinatal care issues, including birth preparedness.

A number of practical and policy recommendations were developed for consideration at program, partner, and policy advocacy levels. The several practical recommendations addressed to the attention of provincial health partners will assist with the sustainability of the project activities over the near and longer-term. The recommendations addressed to all partners will serve to maximize and enhance the impact of project successes, when applied in other districts and provinces of Vietnam, and in other country and programmatic contexts.

Recommendations Addressed to Save the Children for Consideration in Future Program Planning

- Future programs should give careful consideration to community characteristics prior to selection of sites for conduct of Nutrition Education Rehabilitation Programs. Conditions of population size and food insecurity in the community will work against effectiveness of this particular approach.
- Problems of food insecurity should be addressed through multi-sectoral programming and engagement of other stakeholder (Ministries, NGOs).
- Future programming needs to emphasize importance of better ways to "care" for the children (interaction, stimulation, parental attention). Early childhood development programs would seem ideal for introduction into community programming.
- Extend the time for program interventions to be implemented at the village and household level.
- The IEC materials developed for the project should be reviewed, with the intention of selecting the most universal and useful messages, as a cost-benefit tradeoff for laminating them (which has proven to have a very practical purpose).
- A new terminology might be employed in future BCC trainings, with the emphasis placed on "positive practices" or "positive behaviors" rather than "positive persons."
- Use these positive practice examples in larger media environments, such as IEC campaigns disseminated via radio and television, in a variety of minority languages.

- SC/W should implement strict guidelines with respect to the responsibility of Country Directors to notify relevant technical backstops about changes in key program staff. Technical backstops should then participate in the orientation of new staff and explore their level of understanding of the theory and practical applications of program intervention strategies. Training upgrades should be provided or arranged, as indicated.

Recommendations Addressed to Provincial Health Partners for Sustaining Current Programming Beyond the Life of the CS-18 Project

Practical Issues

- Maintain availability and distribution of CDKs; consider low-cost (subsidized) social marketing of the kits as an additional distribution venue.
- Standardize the contents of the CDK (WHO standard).
- Revise the maternal card to better monitor TT shots > 2.
- Promote and advocate for the development of resources for adolescent health education.
- Advocate for expansion of EOC services at the district level, including development of the appropriate facility infrastructure, equipment and supplies, and the training or retraining of providers to provide these essential services.
- Expand the scope and content of information about childhood danger signs into the community meeting topic entitled "home care for children under two (e.g., acute respiratory infection, diarrhea). Incorporate elements of home-based recognition and management of these illnesses, using HC-IMCI guidelines.
- Ensure that the supply of Vitamin A is sustained at CHCs; increase degree of supervision to ensure that it is distributed to mothers and children.
- Refresher training should be planned for district and commune staff, with a focus on clinical updates for new evidence-based practices.
- Specific plans should be made to provide complete training and more intensive supervision in the first year of service for new staff members.
- Some commune health staff, and specifically, the commune midwives, should receive TOT to augment the training and supervision workforce at provincial and district level;
- The supervisory checklist for the community meeting activity needs review in order to improve the measurement of the quality of some facilitation skills.
- All other quality checklists need to be expanded to provide opportunity to document each of the sources of data (e.g., record review or personal observation) that are reviewed during the supervision visit.

Policy Issues

- Advocate with government to consider community meeting and EBF support groups as models for national replication (rural areas and minority communities).
- Advocate with the government to change guidelines for de-worming of young children ages one to two years.
- The District Steering Committee can be encouraged to identify model "successful" communes that demonstrate positive practices, and facilitate "cross visits" between Commune Steering Committee leaders and community members, so that others have the opportunity to learn new information and see models of better practice.

- The District Steering Committees can be encouraged to assess the degree of participation and the effectiveness of leadership of community leaders (who are appointed to their positions), and find ways to build leadership capacity where it is needed; cross-visits are one suggested strategy.
- District and Commune Steering Committees should be encouraged to find the "next application" for their leadership skills. Priority needs should be identified by and with the community (e.g.., water, sanitation, smoking, malaria, and diarrhea). The committee leaders should be provided with models of community action that can be used to address those needs (e.g., the Community Led Total Sanitation model, use of insecticide treated bed nets, Community and Household Integrated Management of Childhood Illness; anti-smoking education campaigns), and provided the guidance, supervision and assistance that they need to implement them within their communities.

Recommendations for all Program Partners Related to Community-based Action and Policy Advocacy

- Advocate for IMCI and HC-IMCI programming (government, UNICEF, and NGOs); place priority on those districts with high rates of malnutrition.
- Consider development of approaches to food supplementation programs that bring food to the vulnerable child rather than being shared among the entire family.
- Use positive practice models to motivate others to change personal beliefs and practices (ultimately affect social norms).
- Encourage use of breastfeeding support groups, but extend membership to family members so that social and family norms can be influenced.
- Extend/establish breastfeeding support groups to all of the villages.
- Expand messages offered through the breastfeeding support groups to include advocacy for maternal nutrition, birth spacing, and smoking cessation.
- Use BCC channels to change expectations of men and the community in general to increase respect for women and the expectations about the family roles of both men and women.

SC completed three Working Papers (Appendix I), which its hopes to further develop into publications and/or presentations in international scientific forums.

The Director of Quang Tri Province Health Services and SC staff facilitated a CS18 Dissemination Workshop on October 12, 2007. The Provincial Health Service committed to continue several CS18 strategies, including service strengthening and Community Meetings, and to scale up Breastfeeding Support Groups. In addition, they will explore the possibility of sending public health students from Hue Medical College to former CS18 districts to observe the model and introduce it to other areas. The province would welcome on-going SC collaboration to monitor and/or evaluate aspects of this (scale, quality, effect), resources permitting.

The potential for scale-up of the package of antenatal and breastfeeding interventions promoted by this project is very clear, and very likely to be successful in other communities and countries. The adaptation of the Positive Deviance Approach with emphasis on "positive persons" and "positive practices" are clearly also appropriate for wider application and scale-up. The

community context for nutrition programming will need careful consideration before selection of the precise application of the *Hearth* intervention.

F. Results Highlight

Please see summaries within each of the three Working Papers in Appendix I. An additional "Results Highlight" is SC's training CD, "Facilitation Skills for Community Development" (Kiem TT, Ha PB, Marsh DR). This slide-show includes embedded video excerpts of a simulated Community Meeting demonstrating 15 facilitation skills for learning and behavior change. Each video segment is sandwiched between slides introducing the skill and reviewing what was demonstrated. SC believes that the CD could interest the wider development community in Vietnam as the skills are not unique to the health sector. It is available on request from SC's headquarters and Hanoi offices.

G. Inapplicable Topics
Not Applicable

H. Other Relevant Topics
Not Applicable

I. Publications and Presentations

SC completed three Working Papers (Appendix I), which it hopes to further develop into publications and/or presentations in international scientific forums.

Appendices

Appendix A: Evaluation Team Members and Their Titles

Appendix B: Final KPC Survey Report

Appendix C: Evaluation Assessment Methodology

Appendix D: List of People Interviewed and Contacted

Appendix E: Documents Reviewed

Appendix F: Community Profile

Appendix G: Publications and Presentations

Appendix H: CD with Electronic Copy of this FE Report

Appendix I: Special Reports

Appendix J: Updated CSHGP Project Data Sheet

Appendix A: Evaluation Team Members and Their Titles

Team Member	Title
Judith T. Fullerton, Ph.D., CNM, FACNM	Reproductive Health and M&E Consultant Team Leader
David Marsh, MD, MPH	Sr. Child Survival Advisor: Save the Children, Westport, CT
Pham Bich Ha, MD, MPH	Director for Health and Nutrition, SC Hanoi
Tran Thi Kiem, midwife	CS-18 Project Manager
Doan Viet Dung, MD	MOH Representative Director RH Center of Quang Tri Province
Mai Nam, MD	MOH Representative: Director of Planning and Training Department Quang Tri Province Health Service
Nguyen Thi Nghia. MD	Deputy Director of Reproductive Health Department Dakrong District Health Prevention Center
Nguyen Thi Tam, midwife	Deputy Director of Huong Hoa District Health Prevention Center Project Secretary
Ngoc Anh, BA	Health Program Assistant Save the Children/Vietnam
Tran Thi Lan, MD	Program Coordinator Save the Children Field Office Quang Tri Province
Ngo Tien Loi	USAID Office, Hanoi
Various Individuals (per diem)	Minority Language Translators

Appendix B: Final KPC Survey Report

KNOWLEDGE, PRACTICE AND COVERAGE SURVEY – ENDLINE

USE OF MATERNAL, NEWBORN AND CHILD HEALTH INTERVENTIONS AFTER A FIVE-YEAR CHILD SURVIVAL PROJECT

REPORT ON A 2007 ENDLINE POPULATION-BASED HOUSEHOLD SURVEY, COMPARED TO THE 2003 BASELINE SURVEY,
IN DAKRONG AND HUONG HOA DISTRICTS,
QUANG TRI PROVINCE, VIETNAM

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Draft 5
August 30, 2007

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Acronyms

ANC	Antenatal Care
BFSG	Breastfeeding Support Group
BHHS	Baseline Household Survey
CDK	Clean Delivery Kit
CG	Community Guide
CHC	Commune Health Center
DS	Danger Sign
EHHS	Endline Household Survey
GP	Group
HHW	Hamlet Health Worker
N, n	Number
NS	Not Significant
PNC	Postnatal Care
PPS	Probability Proportional to Size
SD	Standard Deviation
SC	Save the Children/ US
SS	Statistical Significance
U2C	Children Under 2 Years of Age
WHO	World Health Organization

1. Background

Save the Children, US (SC) is completing a five-year (2002-7) maternal and child health project, *Building Partner Capacity for Child Survival of Vietnamese Ethnic Minority Populations*, targeting 87,000 people (including ~14,000 children under five and ~21,000 women at child-bearing ages [2002]) in Dakrong and Huong Hoa Districts, Quang Tri Province, North Central Region, Vietnam.

Quang Tri Province is one of 14 border provinces (of a total of 66 provinces in Vietnam) with large minority populations. Dakrong and Huong Hoa, mountainous districts adjacent to the Laotian border, are home to Van Kieu and Pakoh people who together comprise 44.7% and 13.8% of the districts, respectively. Traditionally, because of inaccessibility, language, and culture, development has lagged among Vietnam's 54 minority groups, and the Van Kieu and Pakoh are no exception.

Responding to communities' expressed needs, Ministry of Health (MOH) priorities, and SC national and global strategy, the Project sought a sustainable reduction in infant, under 5, and maternal mortality in these ethnic minority districts through improved and sustained: caregiver practices, access to care, and quality of care from community to facility. Since the situation in these districts generalizes to much of Vietnam's highlands, SC tested solutions, which if feasible and successful, could be promoted in other areas of the country through partners and collaborating organizations.

The major project intervention packages were: maternal and newborn care (45%), nutrition and micronutrients (40%), and breastfeeding (15%). The life-saving health interventions, both behaviors and services, were: maternal tetanus toxoid; antenatal iron; clean delivery; delivery by trained attendant; essential newborn care (immediate warming and breast feeding); postpartum maternal vitamin A; exclusive breast-feeding; appropriate complementary feeding; and recognition and care-seeking for maternal, newborn, and childhood danger signs. The Project delivered these interventions through mobilizing demand and improving the availability and quality of services. The principal strategies were strengthening MOH outreach and facility-based antenatal care, delivery and growth monitoring services; training Community Guides (CGs) to impart healthy behaviors through interactive mothers' groups (including monthly meetings covering a series of 14 topics, Breastfeeding Support Groups [BFSG] and drama competitions); and capacity building of MOH and community partners at provincial, district, commune, and village levels. All interventions were consistent with MOH policy. The project relied on existing health personnel, structures, relationships, priorities, and plans.

Project objectives, measurable through a household survey, were**:** improved health status (10% decrease in childhood malnutrition); improved use of services (80% use of tetanus toxoid, 70% use of antenatal iron-folate, 50% use of postnatal care, 70% use of newborn birth weighing and 50% use of postnatal maternal Vitamin A); improved practice of key behaviors (70% practice of clean umbilical cord cutting, 80% practice of immediate breastfeeding, 50% practice of exclusive breastfeeding at age four months, and 40% practice of appropriate complementary feeding). These figures are taken from Table 4 of the Mid-Term Evaluation Amendment and represent revisions from targets in the Detailed Implementation Plan, page 20.

Aims of Endline Survey:

To assess levels of reported use of maternal, newborn, and child health interventions and levels of nutritional status among children <2 years of age

To compare baseline (2003) and endline (2007) indicators.

To perform sub-analyses:

by district, especially for MOH partners

by ethnicity because the Project targeted minorities

by phase of implementation to examine sustainability

by availability of Breastfeeding Support Group (BFSG) because this was a new approach.

2. Methods

2.1 Sampling Frame and Sample Size

Sampling Frame The project covered all 34 communes in the districts (13 in Dakrong and 21 in Huong Hoa) in a phased manner in which about one quarter of the communes received a year of intensive activities each year from 2004 (the so-called Phases 1-4). Two large communes (one in each district) split in 2004, so now the two districts contain 36 communes.

Four of 14 communes of Dakrong implemented Safe Motherhood activities which completed in February 2003. Since the baseline household survey excluded these four communes, we excluded them during this survey to allow comparability. Thus our sampling frame included 32 communes overall, 22 in Huong Hoa District and 10 in Dakrong District (Table A).

Table A. District demographics and sample size (2006)

Characteristic	Huong Hoa	Dakrong
Total Population	69,172	24,373
Number of communes*	22	10
Number of hamlets	194	79
Births per year	1,800	753
<24 months children/1000 population	58	59.6

*Two large communes split in 2004, so now the two districts contain 36 communes, not 34; the table excludes the four Dakrong communes with other projects

The target population for the survey was mothers with living children <24 months of age (born from May 31, 2005 up to the survey dates of May 23, 24, 25, 26 and 27, 2007). The relevant sub-samples will apply to selected indicators.

Sample Size We calculated sample size using the formula for a simple random sample[4] and then multiple by design effect. We rounded up the sample size to 200 to compensate for missing data or

[4] $n = z^2 (pq)/d^2$ in which : n = sample size; z = statistical certainty chosen = 1.96; p = estimated level = .5; d = precision desired = .1; and $n = (1.96)^2 (.5 \times .5)/(.1)^2 = 192$

damaged or missing questionnaires. Thus, the total sample size for the study was 400 (200 for each district).

With a sample size of 400 and eight mother-child pairs in each cluster, we needed 50 clusters for the study in the two districts, 25 clusters of 200 interviews in each district. There was one cluster (Ba Long hamlet, Dakrong District) which had only 7 mothers with children under 2.

A sample size of 200 mothers in each district allowed us to assess indicators for each district as well as for the whole Project. In fact, we implemented two separate surveys, one in each district.

2.2 Sampling Method

We used a probability proportion to size (PPS) cluster sampling method, as guided by KPC2000+ published by the Child Survival Technical Support Project. We considered each district a study unit. We sampled in two phases.

Selecting clusters for each district Each hamlet was a cluster. We chose 25 clusters from each district by PPS based on a list of hamlets with the population of each (Appendix 1). We obtained a list of hamlets from MOH. We excluded hamlets belonging to the four mentioned communes and 14 extremely remote hamlets that at baseline were felt impractical to reach and were excluded then.

Selecting mothers in each cluster Before going to the field, we collected the list of eligible mothers (mothers of children under two years of age) in each cluster and used Epi-Info to randomly select eight mothers per cluster. On the survey day, the data collectors went to the home of selected mothers. Survey teams went to assigned hamlets accompanied by a local health worker and/or birth attendant as local guides and interpreters. Upon re-confirming the case definition, the interviewer proceeded to explain the survey and the ethical aspects (see below). If they mother had more than one child (including twins) less than age 24 months, we inquired about the youngest. If the mother was not at home, failed to meet criteria, or refused to be interviewed (called "leavers"), the team randomly chose another from the provided list.

2.3 Questionnaire Design

The survey team consisted of officers from Save the Children/US and two lecturer-researchers from Hanoi Medical University, who were charged with designing the questionnaires to inform Project indicators. This team read Project documents, including the report of the BHHS, and had many discussions to plan the EHHS. We started with the questionnaire used in the BHHS to maintain comparability. We modified the questionnaire somewhat during the training of supervisors and interviewers, to maximize suitability in terms of language (Vietnamese) and order of questions.

The questionnaire was pre-tested tested on the second day of training after all adaptations. The questionnaire consisted of: information on demographics, maternal and newborn health care, and child health care (English version: Appendix 2).

2.4 Training

We held a two-day training course (Appendix 3) for supervisors and interviewers in Dong Ha to cover the following:

Day 1: Introduction to objectives and the survey, clarification of tasks, finding eligible mothers in each hamlet, contents of questionnaires, and pilot interviews.

Day 2: Pilot interviews of mothers with children less than 24 months of age in the community. Supervisors and interviewers from each district went to their own district to interview six mothers and weigh six children less than 24 months of age and then shared experience.

2.5 Survey Teams

Twelve supervisors and 12 interviewers comprised 6 survey teams for each district (each had 1 supervisor and 1 interviewer). The supervisors were SC officers from the Quang Tri Office and MOH staff from Provincial Preventive Health Center and Quang Chi Secondary Medical School. The twelve interviewers were chosen carefully from students at the Quang Tri Secondary Medical School.

At the district level, we chose the Vice Director of Preventive Health Center (Dakrong) and Head of Reproductive Health Department (Huong Hoa) to help organize planned activities. At the commune level, we choose a midwife from each Commune Health Center to organize hamlet health workers, to assist in accommodations and food, and to obtain necessary permissions.

We used local hamlet health workers as guide-interpreters, when his/her hamlet was selected for assessment. In all, we had 50 guide-interpreters, who proved highly effective because they were knowledgeable about roads, customs and local languages.

2.6 Data Collection

The survey took five field days. The survey teams collected data by cluster. The Directors of Center of Preventive Health and Heads of Health Unit from the two districts and officers from SC made the work-plan for each survey team, including the name of the assigned hamlet (cluster), time expected for work in the commune, and a list of randomly chosen mothers with children < 24 months.

Child weighing: Each team used Nhon Hoa scales provided by the SC Dong Ha office, precise to 0.1 kg with a scope of 0.0-30 kg. Before weighing, the mother removed all but one shirt or one pair of pants. If the child could not sit on the scales' surface, we used a basket. Interviewers zeroed the scales, with or without the basket as necessary. Interviewers read the results when the needle reached a stable position. Each child was weighed once.

Supervisors checked questionnaires before leaving the cluster. Two lecturer-researchers from Hanoi Medical University randomly chose one mother with child less than 24 months of age per cluster, re-interviewed her, and then calculated kappa. If the result failed to reach the required kappa, the

interviewer in question had to re-do all his/her questionnaires in that cluster. We re-interviewed 19 mothers (10 in Dakrong and 9 in Huong Hoa). Kappa results: 16 forms had kappa > 0.75 and 3 with kappa < 0.75. Low result of kappa could be explained as follows:

- Lecturer-researcher used a different interpreter during re-interview. Levels of interpreters may have differed, resulting in different results in the two interviews.
- Some interpreters were commune health workers, who may have feared being evaluated as sub-standard in maternal and childcare themselves, if respondents appeared uninformed. Therefore, they might have answered questions, instead of mothers (data collectors cannot know), despite strict reminding about this matter.
- Common knowledge level of ethnic mothers was rather low (most are illiterate) which might compromise consistency between the two interviews.
- Re-interviewing gave respondents time to reflect and recall more or different information which was reported in the second interview.

2.7 Data Processing and Analysis

Supervisors cleaned data before leaving the clusters. Supervisors again cross-checked data before hand-over to head of investigating group.

We designed data entry in Epi-Info v. 6.04, with logical and legal checks. Data were double entered. In the second time, only 5% of forms were entered (i.e. 20 forms were chosen randomly). If the error between the entries had exceeded 2%, all data entered the first time would have been rejected, but this did not occur.

Almost all calculations were performed by SPSS, version 15. Results of EHHS were compared with those of BHHS. We used Excel to calculate odds ratios to compare BHHS and EHHS, and we used Chi-square to assess statistical significance. Given the many strata, we often compared the "difference in the difference," i.e., we compared baseline vs. endline in Group A with baseline and endline with Group B. To this end, we opted for prevalence ratios as a measure of association rather than odds ratios as they are easier to understand. The literature[5] is divided on which is preferred, and we opted for the one which represents a clear mathematical ("x-fold") measure of increase. To ascertain the biostatistical significance of the difference in difference, we looked at the confidence intervals of the two prevalence ratios: if they did not overlap, we inferred that the difference was biostatistically significant. In future analyses (not in this report), we will calculate Effective Percent Change[6] that will account for differences in baseline values.

We weighted samples to account for Huong Hoa having nearly triple the population of Dakong District for all analyses except for district-specific comparisons.

Children's ages were calculated based on birthdates given by mothers, cross-checked by hamlet health workers' registers and follow-up records. Children's ages were rounded up per WHO to

[5] Thompson ML, Myers JE, Kriebel D, Prevalence odds ratio or prevalence ratio in the analysis of cross sectional data: what is to be done? *Occup. Environ. Med.* 1998;55:272-277.
[6] Source: J. Stoeckel. 1992. Intervention Research on Child Survival, McGraw Hill Book Co., Singapore and New York, Page 75

assess nutritional status. We analyzed nutritional status in EPINUT (a component of Epi-Info, version 6.04) to calculate Z-scores.

Important variables were further analyzed and stratified by relevant important factors like district, ethnic group, phase of implementation, availability of Breastfeeding Support Group, and the like.

2.8 Indicator Definitions

Table B: Indicator Definitions

Indicator	Definition
Antenatal	
Antenatal care (ANC)	Services where pregnant women are examined to assess their pregnancy condition, either at a facility or at a community-based outreach, excluding examination during delivery.
TT-2	At least two tetanus toxoid immunizations during pregnancy or one during this pregnancy and at least one any time previously.
Using iron	Mothers receive iron pills at ANC. "Using" is their report of actually ingesting the pills, either at all or for three or more months.
Delivery	
Give birth at health facility	Commune Health Center (CHC), district hospital, provincial hospital, or private maternity home
Delivery by trained birth attendant	Facility-based deliveries + other deliveries with the assistance of health worker of commune level upward
Receive clean delivery kit (CDK)	Only those delivering at home are asked this question about receipt of CDK at CHC, mobile pregnancy examination team, or hospital.
Use CDK – if received CDK	Use by mothers receiving the kit assesses acceptance of kit.
Use CDK at non-facility delivery	Use by mothers delivering at home assesses cleanliness of home delivery
Use CDK component: sheet, soap, razor blade, thread, cord bandage	Sheet = clean plastic surface; razor blade (sometimes referred to as "blade"; thread = clean cord tying material. Cord bandage (sometimes referred to as "bandage") was not available in all CDKs, of which there were two kinds. The CDK for facility-based delivery included cord bandage. Their use in home delivery decreased over the life of the Project.
Clean cord cut	Cord cut by CDK or other clean home instruments
Clean delivery	Facility-based delivery plus clean home delivery.
Newborn	
Immediate breastfeeding	Within one hour of birth ("right after birth"), as opposed to 1 to 23 hours ("first day") or later than 24 hours after birth ("late breastfeeding")
Prelacteal feeding	If the newborn child was fed before the first breastfeeding.
Discard colostrum	If mother discarded any colostrum within three days of birth
Delay newborn bath	If a newborn was first bathed on or after the second day
Weighing of newborn within 1 day	Reported weighing within 24 hours of birth

Indicator	Definition
Postpartum	
Postnatal home visit within 7 days	Home visit only, among mothers who delivered at home
Postnatal care within 7 days	Above, plus mother who delivered at health facility, all of whom we assume received a postpartum visit.
Maternal vitamin A supplementation	Record-documented or report of receipt of vitamin A capsule within two months of delivery
Child	
Exclusive breastfeeding	Mothers were asked what food (based on commonly available local foods) they fed their infant in the last 24 hours. If the infant only received breast milk, he/she was exclusively breastfed. We calculated the rate of exclusive breastfeeding separately for each infant age group: under 2 months (0-1), under 4 months (0-3), and under 6 months (0-5).
Complementary feeding with various good groups	Derived from a 24-hour recall, which categorized foods into four nutrient groups: protein (milk, fish, meat, eggs, etc), fat (oil, fatty food, nut, sesame, etc), carbohydrate (rice, available nutritious soup, sugar, cassava, corn, potatoes, etc), and micronutrient (fruit juice, fresh fruit, vegetables, etc).
Various numbers of meals/day for various age groups	Number of times the child received solid food within last 24 hours for three age-groups: 6-8, 9-11, and 12-23 months.
Immunization	Report of having been received <u>any</u> immunization, irrespective of time and type.
Child vitamin A supplementation	Report of child having received vitamin A from the last MOH (June or December) campaign.
Malnutrition (WAZ <-2)	Weight-for-age less than -2 SD (Z-score <-2) in comparison with average weight-for-age based on WHO/NCHS reference population.
Severe malnutrition (WAZ <-3)	Weight-for-age less than -3 SD (Z-score <-3) in comparison with average weight-for-age based on WHO/NCHS reference population, including those with weight-for-age less than -2 SD (Z-score <-2)
Mean WAZ	Average weight-for-age Z-score for given age and/or sex group, usually with standard deviation.
All	
Know various numbers of danger signs (DS) for various conditions	Spontaneous report of two or more (or three or more) danger signs promoted through the Project

2.9 Ethics

To obtain permission to carry out the survey, we explained its objectives, use, methods and contents to different levels of leadership in the community (province, district, commune, and hamlet).

Similarly, we obtained voluntary participation from mothers with children < 24 months of age. Those who did not want to participate in the study were able to refuse without prejudice.

Study results will be shared with concerned partners and organizations in order to exchange experience to improve maternal and child health.

2.10 Strengths and Limitations in Field Methods

Strengths There was strong support from SC in terms of leadership, personnel, facilities, transport, and expenses in the Hanoi and Quang Tri Offices.

Health staff at province, district, commune and hamlet levels were enthusiastic, actively preparing and organizing the survey, as well as guiding and interpreting.

Most supervisors and interviewers were highly enthusiastic, responsible and able to complete the survey and assure its quality. For example, the team of Dr. LTT, the officer from Quang Tri Center of Preventive Health, worked very effectively almost without error.

The survey went smoothly and kept on schedule.

Good briefing of consultants and SC staff helped avoid difficulties.

Good training gave supervisors and interviewers confidence in activities during the survey, particularly techniques and approaches to unexpected situations.

It was not raining during household survey, a great advantage for transporting interviewers and supervisors. However, two extremely hot days had some detrimental impact.

Limitations Huong Hoa clusters were extremely dispersed. For example, Tam Rum (Huong Viet commune) was 45 km from the nearest cluster (including motorbike and 10 km walking). Tram (Panang commune) was 80 km from Dakrong center, and the road was very difficult.

Many mothers were away during the survey. For example, in Trum (Patang commune) four mothers went to work in Laos or in a distant field. Interviewers had to wait until the evening. Thus, the survey team returned to Huong Hoa center as late as 9.30 p.m.

There were no shops or inns in several hamlets, and these were far from the center, so many supervisors and interviewers had only dry food or noodles all day.

Some interpreters (commune or hamlet health workers) seemed not completely honest in their interpretation, perhaps causing incorrect information despite previous reminding.

Literacy levels of several mothers was low, and some had just come from Laos so it caused even greater difficulties to interviewers.

Clusters were dispersed, so consultants could not check all clusters.

There was also difficulty in having enough interpreters for consultants for re-interview. Sometimes they had to rely on commune people to interpret for them. If interpreters were health staff members, they may have tried to make mothers' answers "better."

There were two supervisors and two interviewers with borderline responsibility. Sometimes they did not hand in questionnaires or made their own decision to leave early. Some other supervisors were not always careful or enthusiastic. Therefore, some questionnaires had errors despite repeated reminding (ask about vitamin A use for children less than 6 months of age, tick two choices for one-choice questions, etc).

The lists of mothers and children provided by the localities had some errors in mothers' names or children's names. Some lists included children over 24 months of age or children who did not exist. Sometimes fathers' names were listed instead of mothers' names. Some mothers had twins; others had two children under 24 months but their names were listed differently (official name vs. family name). But the cases like that were few.

3. Survey Results

3.1 Sample Characteristics

We interviewed 397 mothers with children less than 2 years of age in both districts, three less than the expected sample (Table 1). The sample was similar to baseline in terms of maternal age, majority (Kinh status), schooling, work, and marital status; child gender; husband's majority (Kinh) status; and number of living children.

As at baseline, most (80.8%) study mothers were between 20-34 years of age; about half (47.4%) had had no schooling; three quarters (74.1%) were farmers; and nearly all (99.7) lived with their husband. Mothers, if minority, were somewhat more likely in 2007 compared to 2003 to be Van Kieu (53.7 vs. 44.7%, $p<0.05$) and less likely to be Pakoh (5.3 vs. 13.8%, $p<0.05$), but only in Huong Hoa District.

Children were a little older in 2007 compared to 2003 (18-23 months: 20.6 vs. 16.5%), and the number of children in the family was slightly less (4 or more living children: 24.7 vs. 31.0%); but these failed to reach statistical significance.

Like their wives, minority husbands were more likely to be Van Kieu (54.6 vs. 44.2%, $p<0.05$) and less likely to be Pakoh (4.3 vs. 13.4%, $p<0.05$) in 2007 compared to 2003, but again only in Huong Hoa District. They were a bit more likely to be unschooled (26.5 vs. 16.8%, $p<0.05$) in 2007 vs. 2003 in Huong Hua District, but this level of un-schooling was about half the level of their wives. Most husbands were farmers, but a bit less than in 2003 (67.0 vs. 74.0%, $p<0.05$).

In summary, the 2007 study population differed a bit from that of 2003 in that mothers and husbands were a somewhat likely to be Kinh (in Huong Hoa District only), husbands were somewhat more likely to be unschooled (in Huong Hoa District only), and husbands were somewhat less likely to be farmers in both districts. Overall, the sample was young, married, under-schooled, agricultural, and predominantly minority both in 2007 and in 2003.

3.2 Overall (Project level) Results

Nearly all (50/53 [94%]) indicators improved, most (43/50 [86%]) achieving statistical significance as well as public health significance (Table 2). Three indicators failed to follow this trend. Carbohydrate inclusion in complementary feeding decreased (97.9 to 94.2%, $p<0.05$) as did use of

CDK cord bandage (83.9 to 55.7%, $p<0.05$) and use of childhood Vitamin A (79.2 to 77.8%, NS). The first is trivial (and possibly beneficial) in light of the reported increases in intake of fat, protein and micronutrients. The second reflects the change in the type of CDK available in Huong Hoa District. The one at baseline (in both districts) was originally intended for facility-based delivery (and included a cord bandage); these were gradually replaced in Huong Hoa by a simpler, smaller kit intended for home delivery (which lacked a cord bandage). Dakrong had no such change. Use increased for all other components (common to both CDKs). The change in use of childhood vitamin A was miniscule, neither significant from a biostatistical nor a public health perspective.

Some indicators showed dramatic increases, such as reported use of maternal iron for at least three months (14.0 to 77.7%, $p<0.05$), a 5.6-fold increase, and knowledge of three or more pregnancy-related danger signs (5.0 to 44.9%, $p<0.05$), a 9-fold increase. Knowledge of three or more dangers signs many groups (prenatal, delivery, and postnatal) showed marked improvement because of very low baseline values.

Some positive trends failed to reach statistical significance because the baseline level had little room for improvement or perhaps because the sub-sample size was small. For example, use of CDK among CDK recipients increased nearly to perfection (91.6 to 98.8%, NS) but insufficiently to satisfy statisticians. Similarly use of CDK razor blade and use of CDK thread increased relatively about 10% or more, but lacked statistical significance. Despite gratifying increases in exclusive breastfeeding for both children less than 4 months of age (39.3 to 51.9%, $p<0.05$) and children less than 6 months of age (34.2 to 44.5%, NS), only the former achieved statistical significance. Finally the number of meals/day for children between 6-8 months (two or more meals: 94.4 to 100%, NS) and 9-11 months (three or more meals: 70.7 to 82.1%, NS) showed encouraging (even perfect improvement in one case), but failed to reach statistical significance. Note that we calculated the aforementioned indicators (use of CDK components among CDK recipients, exclusive breastfeeding, and meals/day) on sub-samples, which decreased the statistical power to detect biostatistical significance.

We examined age-sex-specific rates of exclusive breastfeeding (Table 2A) because in 2003 mothers reported higher levels of exclusive breastfeeding for their daughters than for their sons at less than 4 months of age (50.0 vs. 25.5, $p<0.05$) and less than 6 months of age (42.1 vs. 22.2, $p<0.05$). In 2007 mothers reported similar rates betweens boys and girls among older groups, and the rates for males far surpassed that for females among the youngest group ($\leq$2 months: 85.0 vs. 61.1, NS). Again, it may have failed to reach statistical significance because of a very small sample size.

We also examined the age-sex-specific rates of malnutrition (Tables 2B-D). Overall, global malnutrition (WAZ $\leq$-2) decreased from 2003 to 2007 nearly 25% from 35.4 to 27.2%, more so among females (about 35% reduction or from 34.8 to 22.6%) than among males (about 12% reduction or 36.0 to 31.7%) (Table 2B). The levels of global malnutrition decreased for three of the four age groups, all except for 12-17 months (Table 2B). The overall levels of severe malnutrition (WAZ $\leq$-3) decreased by more than half (12.7 to 6.0%, $p<0.05$) for all age groups, again more so for females (about 80% reduction or 15.0 to 3.1%, $p<0.05$) than for males (about 15% reduction or 10.5 to 8.9%, NS) (Table 2C). Curiously, severe malnutrition among boys in the second year of life remains a challenge: the level for 12-17 month olds was unchanged (13.3 vs. 13.1%), and the level for 18-23 month olds doubled (10.3 to 21.9%)! All other age-sex categories showed improvements, sometimes dramatic. Not surprisingly, malnutrition, as measured by mean WAZ, showed similar improvements (0.22 Z-score improvement from -1.47 to -1.25, NS), again better for girls (0.29 Z-

score improvement from -1.40 to -1.11, $p<0.05$) than boys (0.16 Z-score improvement from -1.54 to -1.39, NS). Indeed, the improvement for girls reached statistical significance in two of the four age groups. The indicator improved for all age-sex categories, except for the youngest males. The expected pattern of gradually increasing levels of malnutrition with age was blunted in 2007, such that the oldest children (18-23 months of age) were nourished similarly to their slightly younger counterparts of 12-17 months age of age (mean WAZ: -1.84 and -1.81, respectively in 2007 vs. -1.18 and -1.90 in 2003).

In summary, indicators increased for: **antenatal care** (ANC visits, use of iron, use of tetanus toxoid, and knowledge of danger signs); **delivery** (at health facility or by trained attendant, clean home delivery, and knowledge of danger signs); **postpartum maternal care** (visit, maternal vitamin A, and knowledge of danger signs); **newborn care** (clean cord cutting, immediate breast feeding, using colostrum, avoiding prelacteal feeding, delaying bathing, weighing, and knowledge of immediate and later dangers signs); and **infant nutrition** (exclusive breastfeeding, complementary feeding frequency and composition, nutritional status, and knowledge of danger signs).

3.3 Results by District

SC worked with two districts, each responsible for their own communes' health. Thus, it was important to examine results through the eyes of our MOH partners (Table 3). Both districts performed similarly. Nearly every indicator in both districts increased (49/51 [96%] in both districts), most improvements achieving biostatistical significance (37/49 [76%] in both districts).

The changes differed between the two districts for three indicators relating to two phenomena: use of antenatal iron and use of the cord bandage among CDK recipients. That is, the relative increase in use of antenatal iron (any or for three or more months) in Huong Hoa was less than in Dakrong because the levels in 2003 were higher in Huong Hoa than in Dakrong. Indeed, the 2007 levels in Huong Hoa remained higher than in Dakrong. Both districts showed similar absolute increases. Regarding use of cord bandage, the level dropped by half in Huong Hoa (84.0 to 43.6%) while increasing in somewhat in Dakrong (80.8 to 87.8%), reflecting district policies regarding the appropriate CDK for home delivery, noted above.

In summary, both districts demonstrated similar improvements in all indicators, within their policy framework.

3.4 Results by Ethnicity

The Project prioritized delivering interventions to the marginalized populations in the two districts, the Pakoh and Van Kieu minority people. Thus, we compared both reported endline indicators and prevalence ratios of change (endline/baseline) for minorities vs. Kinh (Table 4). Minorities showed improvement in nearly all indicators (47/51 [92%]), with most achieving statistical significance (43/47 [91%]). The four indicators that worsened were: reported use of cord bandage among CDK recipients and reported feeding carbohydrate (both of which have been discussed above) and reported feeding of micronutrients (34.7 to 28.0%, NS) and use of childhood vitamin A (77.3 to 72.9%, NS).

Kinh people also showed improvement in almost all (49/51 [96%]) indicators, but fewer achieved statistical significance (29/49 [59%]. Kinh people rarely used CDK, almost always opting for facility-based delivery.

The improvements among minority populations generally exceeded the improvements seen in Kinh counterparts for most (36/51 [71%]) indicators, and this "difference in difference" commonly (20/36 [56%]) achieved statistical significance, as measured by non-overlapping confidence intervals. Not uncommonly (13/51 [25%]) the relative improvement among minorities was twice that seen among the Kinh. The greatest disparity in relative improvement, a 3.5-fold greater improvement, was for using maternal iron for three or more months (prevalence ratio [endline/baseline]): 12.2 vs. 3.44 for minority vs. Kinh respondents, respectively).

The main reason, of course, for the greater improvement among minorities was the lower levels in 2003. For example, in 2003 Kinh respondents were nearly five times more likely to use extended maternal iron than minorities at baseline (25.9 vs. 5.7%). Indeed, endline levels of indicators for minorities were usually (44/51 [86%]) still worse than for Kinh, despite their greater relative improvement.

Some observations contradicted this trend, however. For example, minorities equaled and/or out-performed (greater relative improvement AND better endline levels) Kinh counterparts for immediate breastfeeding, avoiding prelacteal feeding, appropriate meals/day for children 9-11 months, knowledge of three or more pregnancy-related danger signs and knowledge of two or more delivery-related danger signs. Most impressive was the minorities' performance in avoiding prelacteal feeding (decreased from 12.2 to 2.6) compared to Kinh (increased from 10.9 to 16.8).

In summary, the Project made good progress towards narrowing the gap between minority and Kinh populations, even while "moving the goal-line," i.e., also improving the reported use of healthy practices among the Kinh. The Project advanced equity through first selecting a disadvantaged impact area for the Project and then achieving relatively greater effect among the disadvantaged groups within that impact area.

3.5 Results by Phase

SC did not implement this complex Project simultaneously throughout the whole impact area. They chose to implement in 4 phases, one each during Project years two through five. Each phase had only about 12 months of intensive activities and targeted about a quarter of the total Project communes. We looked for suggestions of early sustainability by comparing the reported endline practices of residents from villages with early exposure (Phases 1 and 2) to the reports of their counterparts from villages with late exposure (Phases 3 and 4) (Tables 5A and 5B). We stratified the analysis by ethnicity, given the different baseline values between Kinh and minorities and given that minorities were over-represented in the early phases. In addition, we restricted the Phase 4 sample to infants less than 12 months of age because mothers of older infants would not have had the opportunity to use many maternal, newborn, and infant interventions in this, the last Phase.

Regarding minorities (Table 5A), early exposure mothers reported improvements in most (46/50 [92%]) indicators. The exceptions were use of cord bandage in the CDK (discussed above), and feeding carbohydrate (trivial change from a high baseline: 98.4 to 98.2%, NS), feeding micronutrient (37.5 to 30.4%, $p<0.05$), and feeding 2 or more meals to children 6-8 months of age (100 to 100%).

Late exposure mothers also reported improvements in most (45/50 [90%]) indicators. Their exceptions were similar: use of razor blade in CDK (trivial change from a high baseline: 96.0 to 95.2%), use of cord bandage in CDK, feeding carbohydrate and micronutrients, and reported receipt of vitamin A (72.1 to 58.5, NS). Compared to early exposure counterparts, late exposure respondents reported better, statistically significant, improvement for only three indicators: use of CDK for non-facility deliveries, clean delivery, and receipt of immunization. The difference in clean delivery (prevalence ratio: 1.18 vs. 2.08, among early vs. late, respectively) is likely an artifact of the differing baseline values (60.5 vs. 38.7%, among early vs. late, respectively).

Regarding Kinh (Table 5B), early exposure mothers reported improvements or maintenance of levels of 100% in most (46/50 [90%]) indicators. The exceptions were TT2 (decreased from 100 to 93.5%), avoiding prelacteal feeding (increased from 7.5 to 19.4%), exclusive breastfeeding infants less than 4 and 6 months of age (decreased from 75 to 0% and 44.4 to 20.0%, respectively), and feeding carbohydrate and protein (decreased from 100.0 to 95.2 and 96.9 to 95.2%, respectively). Some changes were small (TT2, feeding carbohydrate and protein), and some samples sizes were small (exclusive breastfeeding). We are left at least with a puzzling increase in prelacteal feeding among Kinh women.

Late exposure Kinh mothers also reported improvements in nearly all (46/50 [92%]) indicators. The exceptions were receipt of CDK (sample = 2), use of CDK among non-facility deliveries (sample = 2), prelacteal feeding (increased from 12.1 to 16.2%), and feeding carbohydrate (decreased trivially from 98.5 to 96.0%). Again, the reported increase in prelacteal feeding among Kinh mothers, both early and late, is puzzling. Unlike the early Kinh mothers noted above, late Kinh mothers reported good improvements in TT2 (95.9 to 100.0%, NS) and exclusive breastfeeding of infants less than 4 (58.3 to 84.2%, $p<0.05$) and less than 6 (61.0 to 80.0%, NS) months of age.

Changes in only four indicators differed by phase, three for minorities and one for Kinh. Compared to their early counterparts, late minority mothers reported greater improvements in levels of use of CDK among non-facility deliveries, clean delivery, and childhood immunization. On the other hand, compared to their late counterparts, early Kinh mothers reported greater improvements in levels of knowledge of pregnancy-related danger signs. As noted above, some of these changes (especially the lattermost) derive from differing baselines. On the other hand, we may have lacked the power to detect some differences because we stratified the sample twice, by phase and by ethnicity. Contrariwise, some of the apparent differences could be due to random error, of which there is more than a little, considering that we have four measurements for 50 indicators!

In summary, reported practices generally improved regardless of Project phase. This means that improvement in Phases 1 and 2 was sustained and that improvement in Phases 3 and 4 was possible, despite the more limited time to consider, intend, and practice new behaviors. Clearly more analyses are needed, including calculating Effective Percent Change to better characterize difference in differences and restricting analyses in all phases to mothers with infants less than a year to assess more current practices, i.e., to better estimate recent sustainability.

3.6 Results by Presence of Breastfeeding Support Group

As noted above, in the second half of the Project, SC tested and replicated BFSGs as a strategy to improve several breastfeeding behaviors: exclusive breastfeeding through four or even six months of age, expressing breast milk, immediate breastfeeding for newborns, feeding colostrum, avoiding

prelacteal feeding, managing common breastfeeding difficulties (engorgement, mastitis, inverted nipples, etc.), breastfeeding through illness, and the timely introduction of age-appropriate complementary feeding (frequency, amount, density, and composition). SC ultimately had one BFSG in 42 minority hamlets, specifically 10 (of a total of 59 [16.9%]) Dakrong minority hamlets and 32 (of a total of 136 [23.5%]) Huong Hoa minority hamlets. We were interested to examine the association between the presence of a BFSG in the hamlet (regardless of respondents' attendance which was not measured in the survey) and reported infant feeding. Because the sample was random and because few hamlets had BFSG, the ultimate sample size from villages with BFSG was small. Worse still, key questions related only to a sub-sample of this already small sample, i.e., mothers with infants less than six, or even four, months of age. Nonetheless, we compared reported practices among minority populations with and without BFSGs in their community (Table 6).

The BFSG did seem to be associated with better exclusive breastfeeding, the main focus of the strategy. Mothers from hamlets with BFSGs reported exclusively breastfeeding their infants more commonly than minority counterparts from hamlets lacking BFSGs, whether the infants were less than age 4 months (55.6 vs. 46.7%) or less than age 6 months (63.6 vs. 32.0%). Moreover, the improvement (endline/baseline prevalence ratio) was greater for mothers from communities with BFSGs than for their counterparts, if the infants were less than age 4 months (2.22 vs. 2.10) and especially if less than age 6 months (3.61 vs. 1.81); however, these differences in difference failed to achieve statistical significance. Sample sizes were tiny.

Mothers from hamlets with BFSGs also reported 2007 levels of seven of nine complementary feeding indicators that were higher than their minority counterparts from hamlets without BFSGs. The exceptions were feeding fat and giving 3+ meals per day for children in the second year of life. Indeed, the reported change in feeding micronutrients was not only greater among residents of BFSG hamlets, but the difference in difference achieved statistical significance – the sole example among these small sub-samples.

However, mothers' reported newborn feeding practices seemed not to benefit from residing in a community with BFSG. The levels and changes compared to communities without BFSGs were small, except for discarding colostrum. One should keep in mind that although we restricted the sample to mothers with infants < 12 months of age, some mothers surely gave birth before a BFSG started in their villages. Finally, the emphasis of the BFSG was exclusive breastfeeding among older infants rather than practices in the first two or three days of life.

In summary, the data suggest that the BFSG strategy improved exclusive breastfeeding and probably complementary feeding practices, but perhaps not newborn breastfeeding practices. These results are tentative, given the very small sample sizes. SC should consider investing in surveying additional women from hamlets with BFSG to better characterize the effect of this potentially important strategy.

4. Discussion

4.1 Main Results

We successfully completed an endline survey in 2007 in Dakrong and Huong Hoa Districts, applying the same sampling frame and questionnaire to similar populations as in the Project baseline survey in 2003.

No Project-level indicators worsened over the life of the Project, and nearly all improved. The Project cannot claim improvement in 55 *different* indicators because many of them are closely related. Nonetheless, the 2007 survey documented improvements from 2003 in: (1) antenatal care visits, (2) use of maternal iron and (3) maternal tetanus toxoid immunization, (4) knowledge of pregnancy-related danger signs, (5) delivery at health facility, (6) delivery by trained (not skilled) attendant, (7) clean home delivery, (8) knowledge of delivery-related danger signs, (9) postpartum care, (10) maternal vitamin A supplementation, (11) knowledge of postpartum danger signs, (12) clean cord cutting, (13) immediate breastfeeding, (14) using colostrum, (15) avoiding prelacteal feeding, (16) delayed newborn bathing, (17) newborn weighing – a proxy for newborn assessment, (18) knowledge of newborn danger signs, (19) exclusive breastfeeding, (20) complementary feeding – frequency and composition, (21) child nutritional status, and (22) knowledge of childhood danger signs. These represent a mix of both services-based (facility or outreach) and household practices.

The purpose of this survey was not to evaluate whether and why or why not the Project achieved its targets. Yet the Project achieved the targets depending on how they are defined:

- a relative, but not absolute, decrease of 10% in childhood malnutrition: 35.4 to 27.2%
- 80% use of tetanus toxoid: 86.6 to 94.0%
- 70% use of iron, as >three months: 14.0 to 77.7%
- 70% newborn weighing: 47.8 to 75.6%
- 50% maternal vitamin A: 25.6 to 68.4%
- 70% clean cord cutting, as clean delivery: 69.5 to 85.8%
- 80% immediate breastfeeding: 74.2 to 92.2%
- 40% exclusive breastfeeding among infants less than age 4 months: 39.3 to 51.9%
- 40% appropriate complementary feeding, as frequency: all measures over 82.1% and as 3+ food groups: 39.9 to 61.8%

The improvements in each district were similar, with identical levels of improvement in both the number of indicators and the number achieving biostatistical significance. This multi-district Project was complicated, but part of pay-off may be a stronger claim to generalizability especially to Vietnam's other minority districts, given that is has already succeeded in more than one district.

The Project focused on minority populations. This, plus the fact that their reported practices and knowledge in 2003 were much lower than those for their Kinh counterpart, probably explains why improvements among minorities were better than among Kinh. Briefly, the minorities started off worse than Kinh, both groups improved but minorities improved more than Kinh, and Kinh ended up still better off. In summary, the gap was narrowed, and equity was served.

There were no important differences between responses from mothers who were exposed to early vs. late Project activities. Specifically, there was no suggestion that early mothers failed to sustain new practices nor that late mothers lacked enough time to commence adopting new practices.

Breastfeeding Support Groups seemed to improve exclusive breastfeeding (their main thrust) and complementary feeding with little effect on immediate newborn feeding. The sample sizes were small, so these results are tentative.

4.2 Specific Results

One of the more interesting findings was the minorities' reported performance in avoiding prelacteal feeding (decreased from 12.2 to 2.6, $p<0.05$) compared to Kinh (increased from 10.9 to 16.8, NS). The difference in difference was significant. The worsening Kinh picture was confirmed by both early and late mothers (Table 5B), adding validity to the observation. We can only speculate on the reasons. Again, the Project targeted minorities, so their improvement is not unexpected. But why would the Kinh practice worsen? Perhaps their better exposure to mass media and advertising and their better economic conditions resulted in a greater use of breast milk substitutes. This needs further study.

The exclusive breastfeeding gap between boys and girls in 2003 seems to have disappeared (Table 2A), even while levels improved for both sexes and among nearly all age-groups. Again, the explanation for this is unknown. Perhaps the exclusive breastfeeding behavior change strategies (messages through community meetings, growth monitoring and promotion, and Breastfeeding Support Groups) were the key. On the other hand, the main change seems to have been that the rate for boys has now increased to that for girls (which only increased modestly). What could account for removing this gender-specific effect? Perhaps, mothers previously practiced "paradoxical sex preference" introducing complementary feeding earlier to boys than to girls, erroneously believing that it was beneficial. Perhaps, now that they have learned that premature complementary feeding is risky and that longer exclusive breastfeeding is beneficial, the levels are equalizing. Indeed, the very high rate of exclusive breastfeeding for boys less than two months of age (85 vs. 61% for girls) is consistent with beneficial "sex preference," i.e., now doing the right thing, not the wrong thing, for their sons.

The level of malnutrition reduced more for female children than for male, both as a categorical (% WAZ <-2 or <-3) and continuous (mean WAZ) variable. Female children were, on average, better nourished than male children (mean WAZ for 0-23 months: -1.11 vs. -1.39, $p<0.05$), and their improvement since 2003 was nearly twice that of their male counterparts (Z-score increase: 0.29 vs. 0.15, respectively). Why is this? We have not conducted sex-specific analyses of complementary feeding, and we lack morbidity information or care-seeking for illness. The exclusive breastfeeding data above suggest little gender difference except for the youngest babies. Perhaps sex-specific child-rearing practices allow for differential morbidity (for example, restraining female young infants from crawling on unhygienic surfaces while encouraging males to do so).

4.3 Likely Validity

Some biases do favor the possibility that reported improvement is somewhat greater than the actual improvement. For example, in the 2007 sample, Kinh were somewhat over-represented, and they

tend to report higher levels of all indicators. Curiously the men were slightly more likely to be un-schooled and less likely to be farmers, which seem contradictory and perhaps suggest that any effects would tend to cancel out. In addition, we restricted the sample of both the baseline and endline surveys to those hamlets which a survey team could reasonably reach in a day, thereby eliminating 14 extremely remote settlements. In the Methods section we confirmed that many villages that we did survey were, in fact, quite remote. Eliminating the 14 most remote, might allow for slightly over-estimating the overall changes as one would expect that these isolated communities would have performed worse than the other hamlets. On the other hand, we should keep in mind that we only eliminated 5% (14/279) of hamlets, so their effect would be small. In the Methods section we listed other "limitations," some of which could have influenced the results to be better than they actually were in a few cases. On the other hand, it is likely that similar methods (and threats) occurred during the 2003 survey. What may be unusual here is the meticulous documentation of the limitations. In summary, we stand by the reported findings.
Beyond internal validity is the ability to infer causality. Before-after "adequacy studies" are not strong because they lack comparison communities ("plausibility studies"), let alone randomization ("probability studies"). Nonetheless, they are common because ethical, funding, practical and technical constraints usually preclude non-intervention comparison communities and randomization. In the case of these districts, though, one can safely assume that the health and the use of Project interventions would have improved somewhat without the Project because of the completion of the Ho Chi Minh Highway through the mountains of Dakrong, the further development of trade with Laos through Huong Hoa, and the rising standard of living.

4.4 Recommendations

This is a rich dataset and should be further mined. We recommend a more systematic approach to assessing the difference in difference. Applying the Effective Percent Change statistic is sensible. We recommend exploring sex differences among other indicators to better understand why girls' nutritional status improved more than that for boys.

Apart from the dataset, per se, SC may wish to invest modest additional resources to more confidently characterize the effect of the Breastfeeding Support Groups. This could involve both a larger sample of mothers to survey as well as qualitative inquiries.

Sustainability studies are rare and should be taken as far as possible. The mini-sustainability study we included here (Tables 5A and B) could be strengthened by restricting analyses in all phases to mothers with infants less than a year of age to assess more current practices, i.e., to better estimate sustainability "now."

5. Tables

Table 1: Characteristics of Mothers, Husbands, and Children n

Table 2: Overall Project Results: Baseline vs. Endline n

Table 2A: Exclusive Breastfeeding by age, sex, and survey: % (n)

Table 2B: Moderate and Severe Malnutrition: % WFA Z-Score < -2

Table 2C: Severe Malnutrition: % WFA Z-Score < -3

Table 2D: Malnutrition: Mean WFA Z-Score

Table 3: Results (Baseline and Endline) by District

Table 4: Results (Baseline and Endline) by Ethnicity

Table 5A: Results (Baseline and Endline) by Phase of Implementation among Minority Mothers

Table 5B: Results (Baseline and Endline) by Phase of Implementation among Kinh Mothers

Table 6: Results (Baseline and Endline) by Presence of Breastfeeding Support Group among Minority Mothers

Table 1: Characteristics of Mothers, Husbands, and Children (% unless otherwise specified)

Characteristic	Dakrong		Huong Hoa		Both	
	2003	2007	2003	2007	2003	2007
Mothers' age (n)	**(191)**	**(189)**	**(194)**	**(190)**	**(385)**	**(380)**
< 20	3.7	5.3	6.2	3.7	5.5	4.2
20-34	86.4	82.0	79.9	80.5	81.6	80.8
35+	9.9	12.7	13.9	15.8	12.9	15.0
Mothers' ethnicity (n)	**(199)**	**(199)**	**(199)**	**(198)**	**(398)**	**(395)**
Kinh	13.6	20.1	51.8	48.2	41.6	40.8
Pakoh and others	17.1	18.6	12.5*	.5*	13.8*	5.3*
Van Kieu	69.3	60.8	35.7*	51.3*	44.7*	53.7*
Mothers' schooling (n)	**(199)**	**(199)**	**(200)**	**(198)**	**(399)**	**(397)**
No schooling	64.3	58.3	40.5	43.4	46.8	47.4
Prim. & secondary	35.2	33.7	46.5	41.4	43.5	39.3
High secondary+	0.5*	8.0*	13.0	15.2	9.7	13.4
Mothers' work (n)	**(200)**	**(199)**	**(200)**	**(198)**	**(400)**	**(397)**
Farming	93.5	89.4	75.0	68.7	79.9	74.1
Marital status (n)	**(200)**	**(199)**	**(200)**	**(198)**	**(400)**	**(397)**
Living with husband	96.0*	99.5*	98.5	100.0	97.8*	99.7*
Children's ages (n)	**(200)**	**(199)**	**(200)**	**(198)**	**(400)**	**(394)**
0-5 months	28.5	27.1	32.5	33.3	31.4	32.7
6-11 months	25.5	24.1	25.5	19.2	25.5	22.1
12-17 months	25.5	26.6	27.0	22.7	26.6	24.6
18-23 months	20.5	20.6	15.0	22.7	16.5	20.6
Children's gender (n)	**(200)**	**(199)**	**(200)**	**(198)**	**(400)**	**(397)**
Female	50.0	50.8	48.0	48.5	48.5	49.1
Husbands' ethnicity (n)	**(192)**	**(199)**	**(197)**	**(198)**	**(389)**	**(394)**
Kinh	14.6	19.6	52.3	47.7	42.4	40.4
Pakoh and others	18.2	16.1	11.7*	0.5*	13.4*	4.3*
Van Kieu	67.2	62.3	36.0*	51.8*	44.2*	54.6*
Husbands' schooling (n)	**(198)**	**(196)**	**(197)**	**(198)**	**(395)**	**(393)**
No schooling	26.3	27.8	13.4*	26.0*	16.8*	26.5*
Prim. & secondary	65.8	57.1	66.0	57.1	65.9*	57.5*
High secondary+	7.9	14.1	20.6	16.7	17.3	16.0
Husbands' work (n)	**(200)**	**(199)**	**(200)**	**(198)**	**(400)**	**(394)**
Farming	85.0	82.4	70.0	61.1	74.0	67.0*
# Living children (n)	**(199)**	**(198)**	**(200)**	**(199)**	**(399)**	**(396)**
1	27.0	27.1	27.5	25.3	24.3	25.8
2-3	40.0	42.2	50.5	52.0	44.7	49.5
4+	33.0	30.7	22.0	22.7	31.0	24.7
Mean (SD)	2.91 (1.76)	2.85 (1.84)	2.62 (1.65)	2.58 (1.42)	2.70 (1.69	2.65 (1.55

n=number (i.e., denominator); * p< .05 (baseline vs. endline)

Table 2: Overall Project Results: Baseline vs. Endline (% unless otherwise specified)

Indicator	2003 (n)	2007 (n)	Prevalence Ratio (2007/2003)
Antenatal			
≥3 Antenatal care visits	35.9 (395)	77.7 (386)	2.16 (1.88-2.49)*
# Antenatal visits (mean ± SD)	1.89 ±1.41 (395)	3.33 ±1.71 (386)	P=0.000
TT2	86.6 (239)	94.0 (317)	1.09 (1.03-1.15)*
Using iron	42.3 (397)	94.1 (392)	2.22 (1.98-2.50)*
Using iron ≥3 months	14.0 (387)	77.7 (390)	5.57 (4.32-7.17)*
Know 2+ danger signs: pregnancy	21.8 (400)	72.0 (397)	3.31 (2.72-4.03)*
Know 3+ danger signs: pregnancy	5.0 (400)	44.9 (396)	8.99 (5.79-13.97)*
Delivery			
Give birth at health facility	43.0 (400)	65.2 (397)	1.52 (1.33-1.73)*
Delivery by trained birth attendant	55.5 (400)	67.9 (396)	1.22 (1.10-1.37)*
Receive clean delivery kit	41.7 (228)	59.9 (137)	1.44 (1.17-1.77)*
Use CDK – if received CDK	91.6 (95)	98.8 (80)	1.08 (1.01-1.15)
Use CDK at non-facility delivery	38.3 (227)	57.2 (138)	1.49 (1.20-1.86)*
Use CDK component: Sheet	57.5 (87)	92.4 (79)	1.61 (1.33-1.95)*
Use CDK component: Soap	33.3 (87)	78.5 (79)	2.35 (1.71-3.24)*
Use CDK component: Razor Blade	88.5 (87)	96.2 (79)	1.09 (1.00-1.19)
Use CDK component: Thread	83.9 (87)	91.3 (80)	1.09 (0.97-1.22)
Use CDK component: Cord bandage	83.9 (87)	55.7 (79)	0.66 (0.53-0.83)*
Clean cord cut	46.5 (226)	59.9 (137)	1.29 (1.06-1.57)*
Clean delivery	69.5 (397)	85.8 (386)	1.23 (1.14-1.33)*
Know 2+ DS: delivery	14.6 (398)	46.2 (396)	3.17 (2.44-4.12)*
Know 3+ DS: delivery	3.8 (398)	16.9 (396)	4.49 (2.61-7.72)*
Newborn			
Immediate breastfeeding	74.2 (396)	92.2 (395)	1.24 (1.16-1.32)*
Prelacteal feeding	11.8 (397)	8.6 (395)	0.73 (0.48-1.11)
Discard colostrum	46.8 (395)	12.2 (393)	0.26 (0.20-0.35)*
Delay newborn bath	42.4 (224)	73.0 (137)	1.72 (1.43-2.07)*
Weigh newborn within 1 day	47.8 (400)	75.6 (397)	1.58 (1.41-1.78)*
Know 2+ DS: NB immediate	22.4 (398)	41.3 (397)	1.85 (1.49-2.30)*
Know 3+ DS: NB immediate	5.8 (397)	12.6 (397)	2.17 (1.35-3.49)*
Know 2+ DS: NB < 7 days	28.8 (399)	60.8 (395)	2.11 (1.77-2.51)*
Know 3+ DS: NB < 7 days	9.3 (399)	33.7 (395)	3.63 (2.59-5.08)*
Postnatal			
Postnatal home visit within 7 days	26.9 (398)	58.7 (395)	2.19 (1.82-2.62)*
Postnatal care within 7 days	48.6 (399)	81.3 (395)	1.67 (1.50-1.87)*
Maternal vitamin A supplementation	25.6 (395)	68.4 (386)	2.68 (2.23-3.21)*
Know 2+ DS: postpartum	12.1 (397)	34.0 (397)	2.81 (2.09-3.79)*
Know 3+ DS: postpartum	0.8 (397)	10.3 (397)	13.7 (4.27-43.8)*
Child			
Exclusive breastfeeding: child < 4 mos	39.3 (89)	51.9 (81)	1.32 (0.95-1.84)*

Indicator	2003 (n)	2007 (n)	Prevalence Ratio (2007/2003)
Exclusive breastfeeding: child < 6 mos	34.2 (117)	44.5 (128)	1.30 (0.95-1.79)
Complementary feeding: 3+ food grps	39.9 (288)	61.8 (267)	1.55 (1.31-1.84)*
Complementary feeding: 4 food grps	16.4 (287)	37.1 (267)	2.26 (1.67-3.07)*
Complementary feeding: carbohydrate	97.9 (291)	94.2 (278)	0.96 (0.93-0.99)*
Complementary feeding: protein	54.6 (291)	72.7 (278)	1.33 (1.17-1.51)*
Complementary feeding: fat	28.2 (291)	47.8 (278)	1.70 (1.36-2.12)*
Complementary feeding: micronutrient	43.6 (291)	53.0 (279)	1.22 (1.02-1.44)*
2+ meals/day: children 6-8 months	94.4 (54)	100.0 (56)	1.06 (0.99-1.13)
3+ meals/day: children 9-11 months	70.7 (58)	82.1 (39)	1.16 (0.93-1.45)
3+ meals/day: children 12-23 months	82.3 (175)	93.5 (168)	1.14 (1.05-1.23)*
Immunization	86.5 (400)	94.4 (395)	1.09 (1.04-1.14)*
Child vitamin A supplementation	79.2 (279)	77.8 (248)	0.98 (0.90-1.08)
Malnutrition (WAZ < -2)	35.4 (400)	27.2 (397)	0.77 (0.62-0.94)*
Severe Malnutrition (WAZ < -3)	12.7 (400)	6.0 (397)	0.47 (0.30-0.75)*
Malnutrition (mean WAZ $\pm$ SD)	-1.47 $\pm$ 2.40	-1.25 $\pm$ 1.33	P > 0.05
Know 2+ DS: children <24 mos	58.4 (399)	76.5 (395)	1.31 (1.19-1.45)*
Know 3+ DS: children <24 mos	17.1 (398)	34.2 (395)	2.00 (1.55-2.58)*

(n)=number (i.e., denominator); * p<0.05 ** Not significant with continuity correction

Table 2A: Exclusive Breastfeeding by age, sex, and survey: % (n)

Sex	<2 months		<4 months		<6 months	
	2003	2007	2003	2007	2003	2007
Female	47 (24)	61.1 (18)	50 (45)*	50.0 (42)	42.1 (58)*	45.9 (61)
Male	43.5 (21)¥	85.0 (20)¥	25.5 (49)*¥	52.5 (40)¥	22.2 (64)*¥	42.6 (68)¥
Overall	**45.3 (45)**	**73.7 (38)**	**37.7 (94)**	**51.2 (82)**	**31.8 (122)**	**44.2 (129)**

(n)=number, i.e., denominator; * p<0.05 (male vs. female); ¥ p<0.05 (2003 vs. 2007)

Table 2B: Moderate and Severe Malnutrition: % WFA Z-Score < -2

Sex	0-5 mos		6-11 mos		12-17 mos		18-23 mos		0-23 mos	
	2003	2007	2003	2007	2003	2007	2003	2007	2003	2007
Female	14.0	4.5	24.9	20.0	53.5	40.5	62.7	41.5	34.8	22.6
Male	14.6	9.9	40.5	25.7	44.5	52.5	56.8	50.0	36.0	31.7
Total	14.3	7.2	32.2	22.4	48.3	48.0	59.9	45.2	35.4	27.2

* p<0.05 (male vs. female) (corrupted baseline data precludes testing statistical significance among subgroups: 2003 vs. 2007)

Table 2C: Severe Malnutrition: % WFA Z-Score < -3

Sex	0-5 mos		6-11 mos		12-17 mos		18-23 mos		0-23 mos	
	2003	2007	2003	2007	2003	2007	2003	2007	2003	2007
Female	6.6	1.5	6.4	2.0	23.6	10.8	32.3	2.5*	15.0	3.1*
Male	2.5	1.4	18.0	5.7	13.3	13.1	10.3	21.9*	10.5	8.9*
Total	4.5	1.4	11.8	3.5	17.5	12.2	21.9	11.1	12.7	6.0

* p<0.05 (male vs. female) (corrupted baseline data precludes testing statistical significance among subgroups: 2003 vs. 2007)

Table 2D: Malnutrition: Mean WFA Z-Score

Sex	0-5 mos		6-11 mos		12-17 mos		18-23 mos		0-23 mos	
	2003	2007	2003	2007	2003	2007	2003	2007	2003	2007
Female	-0.40	-0.37*	-1.61¥	-1.23¥	-1.87	-1.74	-2.23¥	-1.75¥	-1.40¥	-1.11*¥
Male	-0.77	-0.78*	-1.72	-1.63	-1.93	-1.85	-2.13	-1.95	-1.54	-1.39*
Total	-0.59	-0.58	-1.66	-1.39	-1.90	-1.81	-2.18	-1.84	-1.47	-1.25

* p<0.05 (male vs. female); ¥ p<0.05 (2003 vs. 2007)

Table 3: Results (Baseline and Endline) by District (as %, unless otherwise specified)

Indicators	Huong Hoa			Dakrong		
	2003 (n)	2007 (n)	Prevalence Ratio (2007/2003)	2003 (n)	2007 (n)	Prevalence Ratio (2007/2003)
Antenatal						
≥3 Antenatal care visits	39.2 (199)	79.2 (192)	2.02 (1.67-2.44)*	26.8 (194)	73.5 (196)	2.74 (2.14-3.51)*
# Antenatal visits (mean ± SD)	1.98 (199)	3.49 (192)	P=0.000	1.62 (194)	2.90 (196)	P=0.000
TT2	87.4 (199)	93.9 (165)	1.08 (0.99-1.16)	84.3 (121)	93.6 (141)	1.11 (1.02-1.21)*
Using iron	49.5 (198)	96.4 (195)	1.95 (1.69-2.25)*†	23.0 (200)	87.9 (199)	3.82 (2.95-4.95)*†
Using iron ≥3 months	17.7 (192)	80.4 (194)	4.54 (3.32-6.21)*†	4.0 (199)	69.8 (199)	17.4 (8.76-34.5)*†
Know 2+ danger signs: pregnancy	19.0 (200)	67.7 (198)	3.56 (2.63-4.82)*	29.1 (199)	84.4 (199)	2.90 (2.31-3.63)*
Know 3+ danger signs: pregnancy	4.0 (200)	40.9 (198)	10.2 (5.08-20.56)*	7.5 (199)	56.3 (199)	7.47 (4.52-12.3)*
Delivery						
Give birth at health facility	46.0 (200)	70.2 (198)	1.53 (1.28-1.82)*	35.0 (200)	51.3 (199)	1.46 (1.16-1.85)*
Delivery by trained birth attendant	61.0 (200)	73.2 (198)	1.20 (1.04-1.38)*	40.5 (200)	52.8 (199)	1.30 (1.05-1.61)*
Receive clean delivery kit	49.1 (108)	69.5 (59)	1.42 (1.10-1.83)*	24.6 (130)	42.7 (96)	1.74 (1.19-2.54)*
Use CDK – if received CDK	94.3 (53)	97.5 (40)	1.03 (0.95-1.12)	81.3 (32)	100.0 (41)	1.23 (1.04-1.45)*
Use CDK at non-facility delivery	46.3 (108)	66.1 (59)	1.43 (1.09-1.88)*	20.0 (130)	42.3 (97)	2.11 (1.40-3.20)*
Use CDK component: Sheet	62.0 (50)	94.9 (39)	1.53 (1.22-1.92)*	30.8 (26)	87.8 (41)	2.85 (1.59-5.14)*
Use CDK component: Soap	36.0 (50)	82.1 (39)	2.28 (1.53-3.39)*	19.2 (26)	68.3 (41)	3.55 (1.57-8.02)*
Use CDK component: Razor Blade	88.0 (50)	97.4 (39)	1.11 (0.99-1.24)	88.5 (26)	92.7 (41)	1.05 (0.89-1.23)
Use CDK component: Thread	84.0 (50)	92.3 (39)	1.10 (0.95-1.28)	80.8 (26)	90.2 (41)	1.12 (0.90-1.38)
Use CDK component: Cord bandage	84.0 (50)	43.6 (39)	0.52 (0.36-0.76)*†	80.8 (26)	87.8 (41)	1.09 (0.87-1.35)†
Clean cord cut	53.3 (107)	69.0 (58)	1.30 (1.01-1.66)	30.8 (130)	44.3 (97)	1.44 (1.03-2.03)
Clean delivery	74.7 (198)	90.6 (191)	1.21 (1.10-1.33)*	55.0 (200)	72.9 (199)	1.33 (1.14-1.54)*
Know 2+ DS: delivery	12.0 (200)	41.9 (198)	3.49 (2.32-5.26)*	21.8 (197)	58.3 (199)	2.67 (2.00-3.57)*
Know 3+ DS: delivery	2.5 (200)	15.7 (198)	6.26 (2.49-15.8)*	7.6 (197)	20.6 (199)	2.71 (1.55-4.73)*
Newborn						
Immediate breastfeeding	77.8 (198)	92.4 (197)	1.19 (1.09-1.29)*	64.5 (197)	91.9 (198)	1.43 (1.28-1.59)*
Prelacteal feeding	11.6 (199)	8.1 (197)	1.04 (0.97-1.11)	12.2 (196)	9.6 (198)	1.03 (0.96-1.10)
Discard colostrum	39.4 (198)	12.8 (196)	0.32 (0.22-0.49)*	67.5 (197)	10.6 (198)	0.16 (0.10-0.24)*
Delay newborn bath	41.1 (107)	74.6 (59)	1.81 (1.38-2.38)*	45.6 (125)	70.1 (97)	1.54 (1.22-1.94)*

Indicators	Huong Hoa			Dakrong		
	2003 (n)	2007 (n)	Prevalence Ratio (2007/2003)	2003 (n)	2007 (n)	Prevalence Ratio (2007/2003)
Weigh newborn within 1 day	53.5 (200)	80.8 (198)	1.51 (1.31-1.75)*	32.0 (200)	60.8 (199)	1.90 (1.51-2.39)*
Know 2+ DS: NB immediate	21.1 (199)	36.9 (198)	1.75 (1.26-2.42)*	25.8 (198)	53.8 (199)	2.09 (1.60-2.73)*
Know 3+ DS: NB immediate	4.0 (199)	9.6 (198)	2.39 (1.07-5.33)*	11.1 (198)	21.1 (199)	1.90 (1.18-3.06)*
Know 2+ DS: NB < 7 days	27.0 (200)	58.4 (197)	2.16 (1.67-2.79)*	33.8 (198)	67.3 (199)	1.99 (1.60-2.47)*
Know 3+ DS: NB < 7 days	8.5 (200)	31.0 (197)	3.64 (2.21-6.01)*	11.6 (198)	41.2 (199)	3.55 (2.33-5.39)*
Postpartum						
Postnatal home visit within 7 days	30.7 (199)	66.0 (197)	2.15 (1.71-2.71)*	16.5 (200)	38.7 (199)	2.35 (1.64-3.53)*
Postnatal care within 7 days	53.3 (199)	86.8 (197)	1.63 (1.42-1.88)*	36.0 (200)	65.8 (199)	1.83 (1.48-2.26)*
Maternal vitamin A supplementation	27.4 (197)	76.6 (192)	2.79 (2.20-3.55)*	20.6 (199)	45.6 (195)	2.22 (1.62-3.03)*
Know 2+ DS: postpartum	10.5 (200)	32.3 (198)	3.08 (1.96-4.84)*	16.9 (195)	38.7 (199)	2.29 (1.60-3.27)*
Know 3+ DS: postpartum	1.0 (200)	10.1 (198)	10.1 (2.39-42.6)*	0.0 (195)	10.6 (199)	Unable to calculate
Child						
Exclusive breastfeeding: child < 4 mos	44.7 (47)	56.1 (41)	1.26 (0.83-1.91)	19.4 (36)	40.0 (40)	2.06 (0.96-4.42)
Exclusive breastfeeding: child < 6 mos	39.3 (61)	46.3 (67)	1.18 (0.79-1.76)	17.3 (52)	38.6 (57)	2.23 (1.13-4.40)*
Complementary feeding: 3+ food grps	42.3 (142)	62.0 (129)	1.47 (1.16-1.86)*	33.6 (149)	61.0 (146)	1.82 (1.40-2.36)*
Complementary feeding: 4 food grps	16.9 (142)	38.0 (129)	2.25 (1.47-3.44)*	15.4 (149)	34.2 (146)	2.22 (1.43-3.44)*
Complementary feeding: carbohydrate	97.9 (143)	93.4 (136)	0.95 (0.91-1.00)	98.0 (152)	96.6 (148)	0.99 (0.95-1.02)
Complementary feeding: protein	56.6 (143)	72.1 (136)	1.27 (1.07-1.52)*	49.3 (152)	74.3 (148)	1.51 (1.25-1.82)*
Complementary feeding: fat	29.4 (143)	47.8 (136)	1.63 (1.20-2.22)*	25.0 (152)	48.0 (148)	1.92 (1.39-2.65)*
Complementary feeding: micronutrient	43.4 (143)	52.2 (136)	1.20 (0.94-1.54)	44.1 (152)	55.4 (148)	1.26 (1.00-1.58)
2+ meals/day: children 6-8 months	92.3 (26)	100.0 (25)	1.08 (0.97-1.21)	96.8 (31)	100.0 (37)	1.03 (0.97-1.10)
3+ meals/day: children 9-11 months	70.0 (30)	78.9 (19)	1.13 (0.81-1.57)	74.1 (27)	90.0 (20)	1.22 (0.93-1.59)
3+ meals/day: children 12-23 months	82.6 (86)	93.9 (82)	1.14 (1.02-1.27)*	81.3 (91)	93.2 (88)	1.15 (1.02-1.28)*
Immunization	86.0 (200)	95.9 (197)	1.12 (1.05-1.19)*	88.0 (200)	89.9 (199)	1.02 (0.95-1.10)
Child vitamin A supplementation	80.3 (137)	80.7 (119)	1.01 (0.89-1.13)	76.7 (146)	71.0 (138)	0.93 (0.81-1.06)
Malnutrition (WAZ < -2) ††	31.0 (200)	22.7 (198)	0.73 (0.53-1.02)	47.5 (200)	40.2 (199)	0.85 (0.68-1.06)
Know 2+ DS: children <24 mos	57.8 (199)	74.6 (197)	1.29 (1.12-1.49)*	60.0 (200)	81.9 (199)	1.37 (1.20-1.56)*
Know 3+ DS: children <24 mos	16.6 (199)	33.5 (197)	2.02 (1.40-2.92)*	18.5 (200)	35.7 (199)	1.93 (1.37-2.73)*

(n)=number, i.e., denominator; * p<0.05, † statistically significant difference in prevalence ratios, †† corrupted 2003 file precludes further nutritional analyses

Table 4: Results (Baseline and Endline) by Ethnicity (as %, unless otherwise specified)

Indicators	Minority			Kinh		
	2003 (n)	2007 (n)	Prevalence Ratio (2007/2003)	2003 (n)	2007 (n)	Prevalence Ratio (2007/2003)
Antenatal						
≥3 Antenatal care visits	20.9 (230)	68.5 (232)	3.28 (2.52-4.29)*†	57.7 (163)	92.2 (153)	1.59 (1.39-1.84)*†
# Antenatal visits (mean ± SD)	1.44 ± 1.22 (230)	2.87 ± 1.47 (232)	P=0.000	2.53 ± 1.42 (163)	4.06 ± 1.80 (153)	P=0.000
TT2	76.0 (121)	90.5 (168)	1.19 (1.06-1.33)*†	97.4 (117)	98.0 (147)	1.01 (0.97 – 1.04)†
Using iron	26.0 (231)	90.0 (229)	3.46 (2.77-4.32)*†	66.1 (165)	100.0 (161)	1.51 (1.357-1.68)*†
Using iron ≥3 months	5.7 (228)	69.3 (228)	12.2 (7.11-20.8)* †	25.9 (158)	89.4 (161)	3.44 (2.63-4.50)*†
Know 2+ danger signs: pregnancy	18.5 (232)	70.0 (233)	3.77 (2.84 - 5.01)*	26.5 (166)	75.8 (161)	2.85 (2.18-3.73)*
Know 3+ danger signs: pregnancy	3.0 (232)	47.6 (233)	15.8 (7.51-33.2)*	7.8 (166)	41.4 (162)	5.28 (3.03-9.18)*
Delivery						
Give birth at health facility	19.0 (232)	43.2 (234)	2.27 (1.68-3.08)*†	77.1 (166)	98.1 (161)	1.27 (1.16-1.38)*†
Delivery by trained birth attendant	26.7 (232)	46.4 (233)	1.73 (1.34-2.23)*†	95.2 (166)	98.8 (161)	1.03 (0.99-1.07)†
Receive clean delivery kit	37.2 (188)	59.4 (133)	1.59 (1.26-2.01)*	63.2 (38)	66.7 (3)	1.05 (0.45-2.43)
Use CDK – if received CDK	90.0 (70)	98.7 (77)	1.09 (1.01-1.19)*	95.8 (24)	100.0 (2)	1.04 (0.69-1.13)
Use CDK at non-facility delivery	33.5 (188)	57.1 (133)	1.70 (1.32-2.18)*	62.2 (37)	66.7 (3)	1.07 (0.46-2.48)
Use CDK component: Sheet	42.9 (63)	92.1 (76)	2.14 (1.60-2.88)*†	95.7 (23)	100.0 (2)	1.04 (0.95-1.14)†
Use CDK component: Soap	22.2 (63)	77.3 (75)	3.48 (2.15-5.61)*†	65.2 (23)	100.0 (2)	1.53 (1.13-2.06)*†
Use CDK component: Razor Blade	95.2 (63)	96.1 (76)	1.009 (0.93-1.08)	73.9 (23)	100.0 (2)	1.35 (1.06-1.72)*
Use CDK component: Thread	82.3 (62)	90.8 (76)	1.10 (0.96-1.26)	87.0 (23)	100.0 (2)	1.15 (0.98-1.34)
Use CDK component: Cord bandage	79.4 (63)	53.3 (75)	0.67 (0.52-0.86)*†	95.7 (23)	100.0 (2)	1.04 (0.95-1.14)†
Clean cord cut	37.8 (188)	58.6 (133)	1.55 (1.23-1.96)*	88.9 (36)	100.0 (2)	1.13 (1.00-1.26)
Clean delivery	49.4 (231)	75.8 (227)	1.53 (1.32-1.78)*†	97.6 (164)	100.0 (158)	1.02 (1.00-1.05)†
Know 2+ DS: delivery	12.6 (231)	46.4 (233)	3.69 (2.55-5.33)*	16.9 (166)	45.3 (161)	2.68 (1.84-3.92)*
Know 3+ DS: delivery	2.6 (230)	16.2 (234)	6.22 (2.68-14.4)*	5.4 (166)	18.0 (161)	3.32 (1.62-6.79)*
Newborn						
Immediate breastfeeding	63.2 (228)	93.1 (231)	1.47 (1.32-1.63)*†	89.1 (165)	91.3 (161)	1.02 (0.95-1.01)†

Indicators	Minority			Kinh		
	2003 (n)	2007 (n)	Prevalence Ratio (2007/2003)	2003 (n)	2007 (n)	Prevalence Ratio (2007/2003)
Prelacteal feeding	12.2 (229)	2.6 (232)	0.21 (0.08-0.50)*†	10.9 (165)	16.8 (161)	1.53 (0.88-2.67)†
Discard colostrum	59.6 (230)	12.1 (232)	0.20 (0.14-0.29)*	28.2 (163)	12.5 (160)	0.44 (0.27-0.71)*
Delay newborn bath	34.2 (184)	72.9 (133)	2.13 (1.70-2.66)*†	81.6 (38)	100.0 (3)	1.22 (1.05-1.42)*†
Weigh newborn within 1 day	19.8 (232)	60.1 (233)	3.03 (2.29-4.00)*†	87.3 (166)	98.8 (161)	1.13 (1.06-1.20)*†
Know 2+ DS: NB immediate	19.2 (229)	35.2 (233)	1.83 (1.33-2.51)*	25.9 (166)	49.4 (162)	1.90 (1.41-2.57)*
Know 3+ DS: NB immediate	4.4 (229)	8.2 (233)	1.86 (0.88-3.92)	6.7 (165)	19.1 (162)	2.87 (1.49-5.51)*
Know 2+ DS: NB < 7 days	24.7 (231)	47.4 (234)	1.92 (1.47-2.50)*	34.9 (166)	80.6 (160)	2.30 (1.85-2.87)*
Know 3+ DS: NB < 7 days	6.1 (231)	21.5 (233)	3.54 (2.01-6.22)*	13.9 (165)	51.9 (160)	3.72 (2.47-5.59)*
Postpartum						
Postnatal home visit within 7 days	13.0 (230)	50.6 (233)	3.88 (2.71-5.54)*†	46.4 (166)	71.3 (160)	1.53 (1.26-1.85)*†
Postnatal care within 7 days	21.6 (231)	69.7 (234)	3.21 (2.48-4.17)*†	87.3 (165)	99.4 (159)	1.13 (1.07-1.20)*†
Maternal vitamin A supplementation	14.3 (231)	59.1 (230)	4.13 (2.96-5.77)*†	42.3 (163)	82.4 (153)	1.94 (1.60-2.36)*†
Know 2+ DS: postpartum	10.9 (230)	28.8 (233)	2.64 (1.73-4.03)*	13.9 (165)	42.0 (162)	3.01 (1.98-4.58)*
Know 3+ DS: postpartum	0.4 (229)	7.7 (234)	17.6 (2.37-130.9)*	0.6 (165)	14.2 (162)	23.4 (3.21-171.)*
Child						
Exclusive breastfeeding: child < 4 mos	22.9 (48)	47.3 (55)	2.06 (1.14-3.71)*	60.0 (40)	64.0 (25)	1.06 (0.72-1.57)
Exclusive breastfeeding: child < 6 mos	16.4 (67)	35.6 (87)	2.17 (1.18-3.99)*	58.0 (50)	65.0 (40)	1.12 (0.80-1.55)
Complementary feeding: 3+ food grps	18.1 (171)	43.5 (147)	2.40 (1.66-3.47)*†	72.2 (115)	84.0 (119)	1.16 (1.01-1.33)*†
Complementary feeding: 4 food grps	8.2 (171)	10.2 (147)	1.24 (0.62-2.49)	29.6 (115)	69.2 (120)	2.33 (1.72-3.17)*
Complementary feeding: carbohydrate	98.8 (173)	93.0 (157)	0.94 (0.89-0.98)*	96.6 (116)	95.9 (122)	0.99 (0.94-1.04)
Complementary feeding: protein	34.1 (173)	59.2 (157)	1.73 (1.36-2.21)*†	84.5 (116)	90.1 (121)	1.06 (0.96-1.17)†
Complementary feeding: fat	15.1 (172)	30.1 (156)	1.99 (1.30-3.05)*	47.4 (116)	70.5 (122)	1.48 (1.18-1.85)*
Complementary feeding: micronutrient	34.7 (173)	28.0 (157)	0.80 (0.58-1.11)†	56.0 (116)	85.2 (122)	1.52 (1.27-1.81)*†

Indicators	Minority			Kinh		
	2003 (n)	2007 (n)	Prevalence Ratio (2007/2003)	2003 (n)	2007 (n)	Prevalence Ratio (2007/2003)
2+ meals/day: children 6-8 months	93.8 (32)	100.0 (39)	1.06 (0.97-1.06)	95.5 (22)	100.0 (17)	1.04 (0.95-1.14)
3+ meals/day: children 9-11 months	69.4 (36)	88.9 (18)	1.28 (0.97-1.67)	72.7 (22)	75.0 (20)	1.03 (0.72-1.47)
3+ meals/day: children 12-23 months	80.8 (104)	93.1 (87)	1.15 (1.03-1.28)*	84.1 (69)	94.9 (79)	1.12 (1.01-1.26)*
Immunization	78.0 (232)	90.9 (232)	1.17 (1.08-1.26)*	98.2 (166)	99.4 (161)	1.01 (0.99-1.04)
Child vitamin A supplementation	77.3 (163)	72.9 (133)	0.94 (0.83-1.08)	81.6 (114)	84.2 (114)	1.03 (0.92-1.16)
Malnutrition (WAZ < -2) ††	49.8 (270)	38.9 (234)	0.78 (0.64-0.96)*	15.2 (130)	10.6 (161)	0.69 (0.38-1.26)
Know 2+ DS: children <24 mos	62.5 (232)	73.4 (233)	1.17 (1.03-1.33)*	53.0 (164)	81.3 (160)	1.53 (1.30-1.80)*
Know 3+ DS: children <24 mos	16.8 (232)	29.5 (234)	1.75 (1.23-2.48)*	17.7 (164)	40.0 (160)	2.26 (1.54-3.31)*

(n)=number, i.e., denominator; * p<0.05, † statistically significant difference in prevalence ratios, †† corrupted 2003 file precludes further nutritional analyses

Table 5A: Results (Baseline and Endline) by Phase of Implementation among Minority Mothers (as %, unless otherwise specified)

Indicators	Early: Phase 1+2			Late: Phase 3+4		
	2003 (n)	2007 (n)	Prevalence Ratio (2007/2003)	2003 (n)	2007 (n)	Prevalence Ratio (2007/2003)
Antenatal						
≥3 Antenatal care visits	23.8 (80)	71.3 (87)	3.00 (1.98-4.54)*	15.0 (113)	70.0 (110)	4.65 (2.95-7.33)*
# Antenatal visits (mean ± SD)	1.69 ± 1.28 (79)	2.79 ± 0.79 (86)	P=0.000	1.14 ± 1.09 (113)	3.09 ± 1.90 (110)	P=0.000
TT2	74.0 (50)	90.2 (61)	1.21 (1.01-1.46)*	72.9 (48)	93.6 (78)	1.28 (1.07-1.54)*
Using iron	17.5 (80)	94.0 (84)	5.37 (3.32-8.67)*	26.5 (113)	90.9 (110)	3.42 (2.50-4.68)*
Using iron ≥3 months	0 (77)	82.1 (84)	Not calculated	8.8 (113)	65.8 (111)	7.43 (4.05-13.63)*
Know 2+ danger signs: pregnancy	16.0 (81)	72.7 (88)	4.53 (2.71-7.57)*	18.6 (113)	66.7 (111)	3.58 (2.38-5.39)*
Know 3+ danger signs: pregnancy	2.4 (82)	53.9 (89)	22.1 (5.55-88.1)*	4.4 (113)	47.7 (111)	10.8 (4.48-26.0)*
Delivery						
Give birth at health facility	29.3 (82)	52.8 (89)	1.80 (1.22-2.66)*	14.2 (113)	42.7 (110)	3.08 (1.82-4.99)*
Delivery by trained birth attendant	40.7 (81)	55.1 (89)	1.35 (0.97-1.86)	17.7 (113)	46.4 (110)	2.62 (1.67-4.09)*
Receive clean delivery kit	43.1 (58)	51.2 (41)	1.18 (0.78-1.80)	28.9 (97)	66.7 (63)	2.31 (1.61-3.03)*
Use CDK – if received CDK	92.0 (25)	94.7 (19)	1.03 (0.88-1.205)	86.2 (29)	100.0 (42)	1.16 (1.003-1.34)*
Use CDK at non-facility delivery	39.7 (58)	42.9 (42)	1.08 (0.67-1.73)†	25.8 (97)	66.7 (63)	2.58 (1.76-3.78)*†
Use CDK component: Sheet	52.2 (23)	100.0 (18)	1.91 (1.29-2.83)*	20.8 (24)	90.5 (42)	4.34 (1.97-9.53)*
Use CDK component: Soap	31.8 (22)	88.9 (18)	2.79 (1.48-5.26)*	12.0 (25)	81.0 (42)	6.74 (2.31-16.69)*
Use CDK component: Razor Blade	87.0 (23)	94.4 (18)	1.08 (0.89-1.31)	96.0 (25)	95.2 (42)	0.99 (0.89-1.10)
Use CDK component: Thread	91.3 (23)	94.4 (18)	1.03 (0.87-1.22)	66.7 (24)	92.9 (42)	1.39 (1.03-1.87)*
Use CDK component: Cord bandage	87.0 (23)	50.0 (18)	0.57 (0.35-0.93)*	62.5 (24)	52.4 (42)	0.83 (0.54-1.28)
Clean cord cut	43.9 (57)	45.2 (42)	1.03 (0.66-1.61)	29.9 (97)	67.2 (64)	2.25 (1.58-3.19)*
Clean delivery	60.5 (81)	72.0 (82)	1.18 (0.95-1.48)†	38.7 (111)	80.7 (109)	2.08 (1.62-2.67)*†
Know 2+ DS: delivery	11.0 (82)	52.8 (89)	4.81 (2.51-9.18)*	15.2 (112)	40.9 (110)	2.69 (1.64-4.40)*
Know 3+ DS: delivery	1.2 (82)	21.6 (88)	17.7 (2.42-129.)*	4.5 (111)	13.5 (111)	3.00 (1.12-7.97)*
Newborn						
Immediate breastfeeding	57.0 (79)	96.6 (87)	1.69 (1.39-2.06)*	66.7 (111)	91.8 (110)	1.37 (1.19-1.58)*
Prelacteal feeding	9.9 (81)	2.3 (87)	0.23 (0.05-1.06)	16.2 (111)	1.8 (110)	0.11 (0.02-0.47)*
Discard colostrum	74.1 (81)	14.9 (87)	0.20 (0.12-0.33)*	49.5 (111)	10.0 (110)	0.20 (0.11-0.36)*

Indicators	Early: Phase 1+2			Late: Phase 3+4		
	2003 (n)	2007 (n)	Prevalence Ratio (2007/2003)	2003 (n)	2007 (n)	Prevalence Ratio (2007/2003)
Delay newborn bath	33.3 (57)	78.6 (42)	2.36 (1.58-3.52)*	35.1 (94)	70.3 (64)	2.00 (1.46-2.75)*
Weigh newborn within 1 day	25.9 (81)	61.8 (89)	2.38 (1.59-3.56)*	16.7 (114)	60.9 (110)	3.65 (2.36-5.65)*
Know 2+ DS: NB immediate	9.9 (81)	33.7 (89)	3.41 (1.66-7.008)*	27.0 (111)	31.8 (110)	1.17 (0.78-1.77)
Know 3+ DS: NB immediate	2.4 (82)	6.8 (88)	2.79 (0.58-13.46)	6.3 (111)	9.9 (111)	1.57 (0.63-3.90)
Know 2+ DS: NB < 7 days	16.0 (81)	50.6 (89)	3.15 (1.83-5.39)*	31.9 (113)	45.9 (111)	1.44 (1.03-2.02)*
Know 3+ DS: NB < 7 days	1.2 (81)	25.8 (89)	20.9 (2.89-152.)*	10.7 (112)	21.6 (111)	2.01 (1.06-3.83)*
Postpartum						
Postnatal home visit within 7 days	17.3 (81)	51.1 (88)	2.95 (1.76-4.96)*	13.4 (112)	51.4 (111)	3.83 (2.31-6.35)*
Postnatal care within 7 days	32.1 (81)	78.7 (89)	2.45 (1.75-3.42)*	17.0 (112)	67.6 (111)	3.98 (2.59-6.12)*
Maternal vitamin A supplementation	18.8 (80)	63.6 (88)	3.39 (2.09-5.50)*	9.6 (114)	56.5 (108)	5.85 (3.25-10.51)*
Know 2+ DS: postpartum	4.9 (81)	25.0 (88)	5.06 (1.82-14.06)*	15.3 (111)	33.6 (110)	2.19 (1.31-3.65)*
Know 3+ DS: postpartum	0.0 (81)	9.0 (89)	Not calculated	0.0 (111)	5.5 (110)	Not calculated
Child						
Exclusive breastfeeding: child < 4 mos	17.6 (17)	42.9 (28)	2.42 (0.79-7.38)	22.6 (31)	53.6 (28)	2.37 (1.13-4.96)*
Exclusive breastfeeding: child < 6 mos	14.3 (21)	33.3 (36)	2.33 (0.74-7.33)	17.4 (46)	39.2 (51)	2.25 (1.10-4.61)*
Complementary feeding: 3+ food grps	16.1 (62)	44.6 (56)	2.76 (1.46-5.24)*	18.3 (71)	51.7 (58)	2.82 (1.62-4.89)*
Complementary feeding: 4 food grps	6.5 (62)	12.7 (55)	1.97 (0.61-6.37)	4.2 (72)	10.2 (59)	2.44 (0.63-9.34)
Complementary feeding: carbohydrate	98.4 (63)	98.2 (56)	0.99 (0.95-1.04)	98.6 (72)	87.9 (66)	0.89 (0.81-0.97)*
Complementary feeding: protein	38.1 (63)	60.7 (56)	1.59 (1.09-2.32)*	33.3 (72)	60.6 (66)	1.81 (1.24 -2.65)*
Complementary feeding: fat	15.9 (63)	35.7 (56)	2.25 (1.15-4.39)*	12.5 (72)	33.3 (66)	2.66 (1.32-5.37)*
Complementary feeding: micronutrient	37.5 (64)	30.4 (56)	0.81 (0.48-1.34)	29.2 (72)	27.3 (66)	0.93 (0.54-1.59)
2+ meals/day: children 6-8 months	100.0 (12)	100.0 (13)	Not calculated	90.0 (20)	100.0 (26)	1.11 (0.96-1.28)
3+ meals/day: children 9-11 months	50.0 (12)	85.7 (7)	1.71 (0.90-3.25)	79.2 (24)	90.9 (11)	1.14 (0.87-1.51)
3+ meals/day: children 12-23 months	70.0 (40)	94.6 (37)	1.35 (1.08-1.67)*	92.6 (27)	94.4 (18)	1.02 (0.87-1.19)
Immunization	86.6 (82)	88.5 (87)	1.02 (0.91-1.15)	66.4 (113)	90.1 (111)	1.36 (1.17-1.57)*†
Child vitamin A supplementation	75.4 (57)	78.0 (50)	1.03 (0.84-1.27)	72.1 (68)	58.5 (53)	0.91 (0.62-1.06)
Know 2+ DS: children <24 mos	53.1 (81)	64.0 (89)	1.21 (0.93-1.56)	72.8 (114)	82.0 (111)	1.12 (0.97-1.29)
Know 3+ DS: children <24 mos	7.3 (82)	22.7 (88)	3.10 (1.30-7.35)*	25.7 (113)	33.6 (110)	1.31 (0.87-1.97)

(n)=number, i.e., denominator; * p<0.05, † statistically significant difference in prevalence ratios

Table 5B: Results (Baseline and Endline) by Phase of Implementation among Kinh Mothers (as %, unless otherwise specified)

Indicators	Early: Phase 1+2			Late: Phase 3+4		
	2003 (n)	2007 (n)	Prevalence Ratio (2007/2003)	2003 (n)	2007 (n)	Prevalence Ratio (2007/2003)
Antenatal						
≥3 Antenatal care visits	60.0 (40)	100.0 (27)	1.67 (1.29-2.14)*	61.9 (105)	91.2 (102)	1.47 (1.25-1.73)*
# Antenatal visits (mean ± SD)	2.47 ± 1.25 (40)	4.82 ± 1.97 (27)	P=0.000	2.65 ± 1.51 (105)	3.93 ± 1.73 (102)	P=0.000
TT2	100.0 (35)	93.5 (31)	0.93 (0.85-1.02)	95.9 (73)	100.0 (98)	1.04 (0.99-1.09)
Using iron	67.5 (40)	100.0 (31)	1.48 (1.19-1.83)*	70.4 (108)	100.0 (105)	1.42 (1.25-1.60)*
Using iron ≥3 months	28.6 (35)	78.1 (32)	2.73 (1.57-4.76)*	26.4 (106)	92.4 (105)	3.49 (2.53-4.82)*
Know 2+ danger signs: pregnancy	7.5 (40)	77.4 (31)	10.3 (3.42-31.2)*†	37.0 (108)	71.4 (105)	1.92 (1.46-2.53)*†
Know 3+ danger signs: pregnancy	0 (40)	25.8 (31)	Not calculated	10.3 (107)	41.9 (105)	4.07 (2.23-7.45)*
Delivery						
Give birth at health facility	72.5 (40)	96.8 (31)	1.33 (1.09-1.63)*	78.5 (107)	98.1 (105)	1.25 (1.12-1.38)*
Delivery by trained birth attendant	97.6 (41)	100.0 (31)	1.02 (0.97-1.07)	94.4 (108)	98.1 (105)	1.03 (0.98-1.09)
Receive clean delivery kit	81.8 (11)	100.0 (1)	1.22 (0.92-1.61)	56.5 (23)	50.0 (2)	0.88 (0.21-3.70)
Use CDK – if received CDK	100.0 (9)	100.0 (1)	Not calculated	92.3 (13)	100.0 (1)	1.08 (0.92-1.26)
Use CDK at non-facility delivery	81.8 (11)	100.0 (1)	1.22 (0.92-1.61)	52.2 (23)	50.0 (2)	0.95 (0.22-4.04)
Use CDK component: Sheet	100.0 (9)	100.0 (1)	Not calculated	100.0 (12)	100.0 (1)	Not calculated
Use CDK component: Soap	66.7 99)	100.0 (1)	1.50 (0.94-2.38)	75.0 (12)	100.0 (1)	1.33 (0.96-1.84)
Use CDK component: Razor Blade	50.0 (8)	100.0 (1)	2.00 (1.00-3.99)	91.7 (12)	100.0 (1)	1.09 (0.92-1.29)
Use CDK component: Thread	87.5 (8)	100.0 (1)	1.14 (0.88-1.48)	100.0 (12)	100.0 (1)	Not calculated
Use CDK component: Cord bandage	100.0 (9)	100.0 (1)	Not calculated	100.0 (12)	100.0 (1)	Not calculated
Clean cord cut	100.0 (11)	100.0 (11)	Not calculated	86.4 (22)	100.0 (1)	1.15 (0.98-1.36)
Clean delivery	100.0 (40)	100.0 (30)	Not calculated	97.2 (106)	100.0 (104)	1.02 (0.99-1.06)
Know 2+ DS: delivery	2.4 (41)	32.3 (31)	13.2 (1.78-97.9)*	24.1 (108)	44.8 (105)	1.85 (1.25-2.76)*
Know 3+ DS: delivery	0 (40)	3.2 (31)	Not calculated	8.3 (108)	17.1 (105)	2.05 (0.96-4.37)
Newborn						
Immediate breastfeeding	87.5 (40)	93.5 (31)	1.06 (0.92-1.24)	89.7 (107)	91.4 (105)	1.01 (0.93-1.11)
Prelacteal feeding	7.5 (40)	19.4 (31)	2.58 (0.70-9.50)	12.1 (107)	16.2 (105)	1.33 (0.68-2.60)
Discard colostrum	15.8 (38)	9.7 (31)	0.61 (0.16-2.25)	32.7 (107)	11.7 (103)	0.35 (0.19-0.64)*

Indicators	Early: Phase 1+2			Late: Phase 3+4		
	2003 (n)	2007 (n)	Prevalence Ratio (2007/2003)	2003 (n)	2007 (n)	Prevalence Ratio (2007/2003)
Delay newborn bath	72.7 (11)	100.0 (1)	1.37 (0.95-1.97)	82.6 (23)	100.0 (2)	1.21 (1.004-1.46)*
Weigh newborn within 1 day	90.0 (40)	100.0 (31)	1.11 (1.002-1.23)*	86.1 (108)	98.1 (105)	1.13 (1.05-1.23)*
Know 2+ DS: NB immediate	22.5 (40)	58.1 (31)	2.58 (1.35-4.93)*	29.9 (107)	48.6 (105)	1.62 (1.14-2.30)*
Know 3+ DS: NB immediate	2.5 (40)	12.9 (31)	5.16 (0.60-43.89)	9.3 (108)	19.8 (106)	2.14 (1.05-4.32)*
Know 2+ DS: NB < 7 days	30.0 (40)	90.3 (31)	3.01 (1.85-4.90)*	41.1 (107)	78.1 (105)	1.89 (1.48-2.43)*
Know 3+ DS: NB < 7 days	15.0 (40)	38.7 (31)	2.58 (1.09-6.10)*	15.7 (108)	53.3 (105)	3.38 (2.11-5.43)*
Postpartum						
Postnatal home visit within 7 days	50.0 (40)	61.3 (31)	1.22 (0.80-1.86)	49.1 (108)	74.8 (103)	1.52 (1.21-1.90)*
Postnatal care within 7 days	87.5 (40)	96.8 (31)	1.10 (0.96-1.26)	86.9 (107)	100.0 (104)	1.15 (1.06-1.23)*
Maternal vitamin A supplementation	46.2 (39)	64.5 (31)	1.39 (0.91-2.14)	45.3 (106)	82.8 999)	1.82 (1.45-2.29)*
Know 2+ DS: postpartum	12.5 (40)	22.6 (31)	1.80 (0.63-5.14)	16.8 (107)	41.0 (105)	2.43 (1.50-3.93)*
Know 3+ DS: postpartum	2.5 (40)	3.1 (32)	1.25 (0.81-19.21)	0 (108)	15.2 (105)	Not calculated
Child						
Exclusive breastfeeding: child < 4 mos	75.0 (4)	0 (6)	Not calculated	58.3 (36)	84.2 (19)	1.44 (1.03-2.02)*
Exclusive breastfeeding: child < 6 mos	44.4 (9)	20.0 (10)	0.45 (0.10-1.89)	61.0 (41)	80.0 (30)	1.31 (0.96-1.77)
Complementary feeding: 3+ food grps	84.4 (32)	100.0 (20)	1.18 (1.02-1.37)*	69.7 (66)	88.0 (75)	1.26 (1.05-1.51)*
Complementary feeding: 4 food grps	22.6 (31)	75.0 (20)	3.32 (1.65-6.68)*	35.4 (65)	76.0 (75)	2.14 (1.51-3.05)*
Complementary feeding: carbohydrate	100.0 (31)	95.2 (21)	0.95 (0.86-1.04)	98.5 (66)	96.0 (75)	0.97 (0.92-1.03)
Complementary feeding: protein	96.9 (32)	95.2 (21)	0.98 (0.87-1.10)	81.8 (66)	89.5 (76)	1.09 (0.95-1.25)
Complementary feeding: fat	48.4 (31)	71.4 (21)	1.47 (0.93-2.32)	51.5 (66)	77.6 (76)	1.50 (1.15-1.96)*
Complementary feeding: micronutrient	61.3 (31)	90.5 (21)	1.47 (1.08-2.01)*	56.7 (67)	89.3 (75)	1.57 (1.26-1.96)*
2+ meals/day: children 6-8 months	100.0 (3)	100.0 (5)	Not calculated	94.7 (19)	100.0 (13)	1.05 (0.94-1.17)
3+ meals/day: children 9-11 months	100.0 (7)	100.0 (3)	Not calculated	60.0 (15)	72.2 (18)	1.20 (0.72-1.99)
3+ meals/day: children 12-23 months	95.2 (21)	100.0 (13)	1.05 (0.95-1.15)	76.7 (30)	100.0 (42)	1.30 (1.07-1.58)*
Immunization	100.0 (40)	100.0 (31)	Not calculated	97.2 (108)	99.0 (105)	1.02 (0.98-1.06)
Child vitamin A supplementation	87.1 (31)	89.5 (19)	1.03 (0.84-1.26)	76.9 (65)	79.2 (72)	1.03 (0.86-1.23)
Know 2+ DS: children <24 mos	50.0 (40)	87.1 (31)	1.74 (1.24-2.44)*	58.5 (106)	78.6 (103)	1.34 (1.11-1.62)*
Know 3+ DS: children <24 mos	12.5 (40)	32.3 (31)	2.58 (0.98-6.77)	21.7 (106)	42.3 (104)	1.95 (1.27-2.98)*

(n)=number, i.e., denominator; * p<0.05, † statistically significant difference in prevalence ratios

Table 6: Results (Baseline and Endline) by Presence of Breastfeeding Support Group among Minority Mothers (as %, unless otherwise specified)

Indicators	No BFSG in Village			BFSG Present in Village		
	2003 (n)	2007 (n)	Prevalence Ratio (2007/2003)	2003 (n)	2007 (n)	Prevalence Ratio (2007/2003)
Newborn						
Immediate breastfeeding	60.3 (174)	93.0 (200)	1.54 (1.36-1.75)*	72.2 (54)	90.6 (32)	1.26 (1.03-1.53)*
Prelacteal feeding	12.5 (176)	2.5 (200)	0.20 (0.08-0.52)*	11.3 (53)	3.1 (32)	0.28 (0.04-2.19)
Discard colostrum	64.6 (175)	11.1 (199)	0.17 (0.11-0.26)*	42.6 (54)	15.6 (32)	0.37 (0.16-0.87)*
Child						
Exclusive breastfeeding: child < 4 mos	22.2 (36)	46.7 (45)	2.10 (1.06-4.17)*	25.0 (12)	55.6 (9)	2.22 (0.71-6.96)*
Exclusive breastfeeding: child < 6 mos	17.6 (51)	32.0 (75)	1.81 (0.92-3.57)	17.6 (17)	63.6 (11)	3.61 (1.18-11.05)*
Complementary feeding: 3+ food grps	19.8 (131)	42.2 (128)	2.13 (1.43-3.17)*	12.2 (41)	57.9 (19)	4.75 (1.92-11.75)*
Complementary feeding: 4 food grps	9.9 (131)	10.2 (128)	1.02 (0.49-2.12)	2.5 (40)	15.8 (19)	6.32 (0.70-56.79)
Complementary feeding: carbohydrate	98.5 (133)	93.4 (136)	0.95 (0.90-0.99)*	100.0 (40)	95.0 (20)	0.95 (0.86-1.05)
Complementary feeding: protein	36.8 (133)	56.6 (136)	1.54 (1.18-2.01)*	22.5 (40)	76.2 (21)	3.39 (1.82-6.31)*
Complementary feeding: fat	16.5 (133)	33.1 (136)	2.00 (1.28-3.14)*	12.2 (41)	14.3 (21)	1.17 (0.31-4.44)
Complementary feeding: micronutrient	38.6 (132)	22.8 (136)	0.59 (0.41-0.86)*†	22.0 (41)	61.9 (21)	2.82 (1.45-5.50)*†
2+ meals/day: children 6-8 months	92.0 (25)	100.0 (33)	1.09 (0.97-1.22)	100.0 (7)	100.0 (5)	Not calculated
3+ meals/day: children 9-11 months	63.6 (22)	88.2 (17)	1.39 (0.97-1.99)	78.6 (14)	100.0 (1)	1.27 (0.97-1.67)
3+ meals/day: children 12-23 months	82.1 (84)	94.8 (77)	1.54 (1.03-1.29)*	78.9 (19)	72.7 (11)	0.92 (0.60-1.42)

(n)=number, i.e., denominator; * $p<0.05$, † statistically significant difference in prevalence ratio

6. Appendices

Appendix 1: List of Clusters

Appendix 2: Questionnaire (English version)

Appendix 3: Training Calendar

Appendix 1: List of Clusters

No	Hamlet	Commune	No of household	Population
Huong Hoa District				
1	Trung chinh	LAO BAO	283	1379
2	Tan kim	LAO BAO	176	903
3	Ka tang	LAO BAO	132	649
4	Co thanh	TAN THANH	87	418
5	Long quy	TAN LONG	71	321
6	Tan tai	TAN LAP	167	764
7	Tan huu	TAN LIEN	77	387
8	Dai thuy	TAN LIEN	29	148
9	Khom 2	KHE SANH	310	1442
10	Khom 3b	KHE SANH	317	1308
11	Khom5	KHE SANH	142	756
12	Tan xuyên	KHE SANH	295	1636
13	Ba tang	PA TANG	62	354
14	A doi do	A DOI	52	263
15	Ra hang	TA TUC	32	176
16	A mor	A XING	73	412
17	Cua	HUONG TAN	70	335
18	Ta ri 1	HUC	65	401
19	Miet	HUONG LINH		537
20	Ban 7	THUAN	43	260
21	Nguon rao	HUONG SON	68	380
22	Ma lai	HUONG PHUNG	112	452
23	Xa ly	HUONG PHUNG	112	574
24	Ban 10	THANH	57	346
25	Tri	HUONG LAP	20	124
Đakrong				
1	Pa Hy	Talong	103	542
2	A Đu	Talong	47	296
3	Khom I	Krong Klang	144	551
4	Cat	Krong Klang	69	332
5	Khe Xong	Krong Klang	126	610
6	Ta Rec	Banang	52	321
7	Đa Noi	Balong	101	520
8	Van Van	Balong	68	341
9	Ha Vung	Balong	49	270
10	A Đeng	A ngo	80	408
11	A La	A ngo	50	204
12	A Đang	A ngo	83	483
13	A Vao	Avao	52	268
14	Tan Đi I	Avao	51	280
15	Lang Cat	Dakrong	129	680
16	Klu	Dakrong	104	532
17	Pa Tang	Dakrong	62	308
18	Ba Ngao	Dakrong	42	221
19	Khe Ngai	Dakrong	96	589

No	Hamlet	Commune	No of household	Population
20	Ruong	Huong Hiep	126	657
21	Ra Lu	Huong Hiep	81	410
22	Kreng	Huong Hiep	77	452
23	Khe Hien	Huong Hiep	17	87
24	Phu Thieng	Mo O	78	249
25	Ta Lang	Hai phuc	43	207

Appendix 2: Questionnaire

Code ☐☐-☐☐-☐☐-☐☐

District Comm. Village Household

Quang Tri Health Services

Questionnaire for interviewing mothers of children less than 24 months of age

(Interview mothers with child who born since May 31st 2005 up to now)

Introduction:
For each of the question, select only one appropriate answer, except one that is indicated that there probably several answers. Do not read the *italic* part when interviewing.
For the answer "Other _____", it is needed to write the specific answer on the designated line. If more room is needed, please write in the reverse side of the page and note the question that the answer is served for.

Quang Tri Province District _____
Commune _____ Hamlet _____

Date:_____/____/2002
Name of interviewers: 1_____2._____

Name of supervisor: _____

Introduction and consent
Hello, my name is _____ , I am working with the District health center of _____. We come here to explore the situation of MCH care of this community. We are very pleased if you are able to answer our questions on how you have taken care of yourself and your children while you were pregnant and took care of your children. Information that we gain through the interview will be helpful for us. The interview usually lasts from 30-40 minutes.
If the interviewee agree to continue → Ask following the questionnaire.
If the interviewee does not agree to continue → Stop the interview.

What is your name? (Ask mother and check with household registration book or ID card...)
_____
How old are you? _____
DK [ ]

What is your ethnic group:
Van Kieu [ ]
Pakoh [ ]
Kinh [ ]
Other [ ]
_____

What's name of the your youngest child:
_____
What's his/her DOB:
_____/ _____/_____
Day Month Year
How old is he/she (months) _____
What's Ethnic group:
: Van Kieu [ ]
Pakoh [ ]
Kinh [ ]
Other [ ]
_____

Part 1. General Information

C.1	What is the highest grade of education you have finished?	
	Don't know read and write	[ ]
	Know read and write	[ ]
	Elementary (1-5)	[ ]
	Secondary school (6-9)	[ ]
	High school (10-12)	[ ]
	Junior/Vocational school	[ ]
	College and above	[ ]
	DK	[ ]
	Do not answer	[ ]
C.2	What is your major job?	
	Farming	[ ]
	Small trade business	[ ]
	Government officer	[ ]
	Raising livestock	[ ]
	Other : _____	[ ]
	DK	[ ]
	Do not answer	[ ]
C.3	What is your marital status? *(Where's your husband?)*	
	Married, living with husband	[ ]
	Not married	[ ] → **Move to C.7**
	Divorced	[ ] → **Move to C.7**
	Widow	[ ] → **Move to C.7**
	Do not answer	[ ] → **Move to C.7**
C.4	What ethnic group does your husband belong to?	
	Van Kieu	[ ]
	Pakoh	[ ]
	Kinh	[ ]
	Other_____	[ ]
	DK	[ ]
	Do not answer	[ ]
C.5	What is the highest grade of education your husband has finished?	
	Can not read and write	[ ]
	Can read and write	[ ]
	Elementary (1-5)	[ ]
	Secondary school (6-9)	[ ]
	High school (10-12)	[ ]
	Junior/Vocational school	[ ]
	College and above	[ ]
	DK	[ ]
	Do not answer	[ ]
C.6	What is your husband's major job?	
	Farming	[ ]
	Small trade business	[ ]
	Government officer	[ ]
	Raising livestock	[ ]
	Other : _____	[ ]
	Do not know	[ ]
	Do not answer	[ ]

C.7	How many people live in your household? (*Based on HH registration book*) Number of people..... Do not answer.....	 ____ persons 99 [ ]

Part 2. Information on MCH and Newborn Care

C.8	How many pregnancies have you been having? (*including abortion, miscarriage*) Number of pregnancies ..... Do not answer.....	 ____times 99 [ ]
C.9	How many births have you given? (*including deaths*) Number of birth ..... Do not answer.....	 ____time 99 [ ]
C.10	How many alive children do you have at present? Number of children..... Do not answer.....	 ____children 99 [ ]
C.11	When you were pregnant for this child, did you get antenatal care? Yes..... No ..... Do not answer.....	 1 [ ] 2 [ ] → **Move to C.16** 3 [ ] → **Move to C.16**
C.12	Do you have maternal care card? (*Check the card, if yes*) Yes..... Yes, but loss..... Do not have.....	 1 [ ] 2 [ ] 3 [ ]
C.13	How many times have you got ANC check? (*excluding examination at delivery*) Number of ANC check Do not remember..... Do not answer.....	 ____ times 98 [ ] 99 [ ]
C.14	Where did you get ANC check? Commune health center ..... District hospital ..... Provincial Hospital..... Outreach ANC service at village Other:_____ Do not remember..... Do not answer.....	 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6 [ ] 7 [ ]
C.15	Who performed the ANC check? *(this is a multi-choice)* Health professional..... Traditional healer..... Traditional Birth Attendant (TBA)..... Other_____ Do not answer.....	 [ ] → **Move to C.17** [ ] → **Move to C.17** [ ] → **Move to C.17** [ ] → **Move to C.17** [ ] → **Move to C.17**

C.16	Why didn't you get ANC check up? *(This is the multi-choice)* Do not know the service Avoidance Ashamed Far from the service Do not have money Husband does not agree Parents do not agree Other_____ Do not answer	 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6 [ ] 7 [ ] 8 [ ] 9 [ ]
C.17	While you were pregnant with this child, did you receive tetanus shot? Yes No Do not remember/do not know Do not answer	 [ ] [ ] → **Move to C.19** [ ] → **Move to C.20** [ ] → **Move to C.20**
C.18	How many TT shots did you get for this pregnancy? Number of TT shots (check maternal card if the woman has the card) Do not remember Do not answer	 ____times→ **Move to C.20** 98 [ ] → **Move to C.20** 99 [ ] → **Move to C.20**
C.19	Why didn't you get TT shots for the pregnancy of this child? *(This is the multi-choice)* Do not know the service Avoidance Ashamed Far from the service Do not have money Husband does not agree Parents do not agree Miss the service Other_____ Do not answer	 [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]
C.20	Before this pregnancy, did you get tetanus vaccinated? Yes No Do not know/Don't remember Do not answer	 1 [ ] 2 [ ] 3 [ ] 4 [ ]

C.21	Did you take iron tablet *(drug to prevent anemia)* in this pregnancy? Yes..... No ..... Don't remember ..... Don't know..... Do not answer.....	 1 [ ] 2 [ ] → **Move to** Error! Reference source not found. 3 [ ] → **Move to** Error! Reference source not found. 4 [ ] → **Move to** Error! Reference source not found. 5 [ ] → **Move to** Error! Reference source not found.
C.22	Where did you get the iron tablets? CHC..... Hospital..... Village health worker ..... Self-purchase ..... Other_____ DK ..... Do not answer.....	 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6 [ ] 7 [ ]
C.23	How often did you use the iron tablets? One time for each day..... One time every two days ..... Use when remember ..... Other:_____ Don't remember ..... Don't know..... Do not answer.....	 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6 [ ] 7 [ ]
C.24	How long did you take the iron? Less than 3 months ..... 3 months and above..... Don't know..... Do not answer.....	 1 [ ] 2 [ ] 3 [ ] 4 [ ]
C.25	Where did you give birth to this child? CHC..... District hospital..... Provincial/central hospital..... At home ..... In the forest/farm ..... Other_____ Do not answer.....	 1 [ ] → **Move to C.46** 2 [ ] → **Move to C.46** 3 [ ] → **Move to C.46** 4 [ ] 5 [ ] 6 [ ] 7 [ ] → **Move to C.46**
C.26	What was the delivery place covered by? Nothing..... Clean nylon..... Other:_____ Do not remember..... Do not answer.....	 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ]

C.27	When you gave birth, who stayed with you? *(This is the multi-choice)* Husband..... Children..... Mother (biological and in-law)..... Sisters (biological and in-law)..... CHC's staff ..... Village health worker ..... Neighbor..... TBA ..... Other_____ No one..... Do not remember..... Do not answer.....	 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6 [ ] 7 [ ] 8 [ ] 9 [ ] 10 [ ] 11 [ ] 12 [ ]
C.28	Who assisted the birthing process? Health staff..... Self- assisted ..... Other_____ Do not remember..... Do not answer.....	 1 [ ] 2 [ ] 3 [ ] 4 [ ] → **Move to C.30** 5 [ ] → **Move to C.30**
C.29	Did the birth assistant wash her hands before holding the baby? Yes..... No but wear gloves ..... No ..... Do not remember/ do not know..... Do not answer.....	 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ]
C.30	Who cut the cord for the baby? Health staff ..... Self-cut by Mother..... Other_____ Do not remember..... Do not answer.....	 1 [ ] 2 [ ] 3 [ ] 4 [ ] → **Move to C.32** 5 [ ] → **Move to C.32**
C.31	Did the person who cut the cord wash her/his hands before cutting? Yes..... No ..... Do not remember/DK..... Do not answer.....	 1 [ ] 2 [ ] 3 [ ] 4 [ ]
C.32	What was used for cutting cord? Normal knife/scissors ..... Reaping-hook ..... Bamboo splints ..... Razor blade..... Medical instruments ..... Other_____ Do not remember/ do not know..... Do not answer.....	 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6 [ ] 7 [ ] → **Move to C.34** 8 [ ] → **Move to C.34**

C.33	Before being used for cutting the cord, how was the instruments cleaned? *(This is multi-choice)*	
	Boiled	1 [ ]
	Put on the flame	2 [ ]
	Burn in alcohol	3 [ ]
	Dip in the boiled water	4 [ ]
	Do nothing	5 [ ]
	Other_____	6 [ ]
	Do not know	7 [ ]
	Do not answer	8 [ ]
C.34	What was used to tie the cord?	
	Thread (in the Clean Delivery Kit)	1 [ ]
	Sewing thread	2 [ ]
	Jute fiber from jute bag	3 [ ]
	Other_____	4 [ ]
	Do not remember/DK	5 [ ]
	Do not answer	6 [ ]
C.35	What was the put on the cord stump after the cord was cut?	
	Iodine alcohol	1 [ ]
	Charcoal	2 [ ]
	Resin (liquid from tree)	3 [ ]
	Spider burned ash	4 [ ]
	Other_____	5 [ ]
	Nothing	6 [ ]
	Do not remember/DK	7 [ ]
	Do not answer	8 [ ]
C.36	After being cut, what was the cord bandaged with?	
	Medical bandage	1 [ ]
	Old clothes	2 [ ]
	Clean cloth	3 [ ]
	Other_____	4 [ ]
	Was not bandaged	5 [ ]
	Do not remember/DK	6 [ ]
	Do not answer	7 [ ]
C.37	Did you have CDK?	
	Yes	1 [ ]
	No	2 [ ] → **Move to C.40**
	Do not remember	3 [ ] → **Move to C.40**
	Do not answer	4 [ ] → **Move to C.40**
C.38	Did you use the CDK?	
	Yes	1 [ ]
	No	2 [ ] → **Move to C.40**
	Do not remember	3 [ ] → **Move to C.40**
	Do not answer	4 [ ] → **Move to C.40**

C.39	Which parts of the CDK did you use? *(This is multi-choice)* Nylon Soap Razor blade Thread Bandage Gloves Iodine Other _____ Do not remember Do not answer	 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6 [ ] 7 [ ] 8 [ ] 9 [ ] 10 [ ]
C.40	Right after expelled, was the baby dried? Yes No Do not remember/DK Do not answer	 1 [ ] 2 [ ] 3 [ ] 4 [ ]
C.41	After delivery, what did you use to keep the baby warm? *(This is multi-choice)* Baby's clothes Blanket Stay at the fireplace Other:_____ Do not remember/DK Do not answer	 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6 [ ]
C.42	Cancel	
C.43	When did you first bathe the baby? Right after birth/Cutting cord Within one day After one day Do not remember Do not answer	 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ]
C.44	Did you bath the baby with warm or cold water? Warm water Cold water Do not remember Do not answer	 1 [ ] 2 [ ] 3 [ ] 4 [ ]
C.45	What did you mix with water to bath the baby? Soap Herb Other _____ Nothing Do not remember Do not answer	 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6 [ ]
C.46	Did anyone do health check for you within 7 days after delivery? Yes No Do not remember Do not answer	 1 [ ] 2 [ ] → **Move to C.48** 3 [ ] → **Move to C.48** 4 [ ] → **Move to C.48**

C.47	Who did the health check (at home)?	
	CHC health worker	1 [ ]
	Trained midwife	2 [ ]
	Village health worker	3 [ ]
	TBA	4 [ ]
	Mother (without professional skill)	5 [ ]
	Other_____	6 [ ]
	Do not remember	7 [ ]
	Do not answer	8 [ ]
C.48	Did you take vitamin A within **one month** after delivery?	
	Yes	1 [ ]
	No	2 [ ]
	Do not remember	3 [ ]
	Do not answer	4 [ ]
C.49	Cancel	
C.50	Cancel	
C.51	According to your opinion, when a woman is pregnant, what signs indicate that she is in danger and needs to seek care immediately? *(This is multi-choice)*	
	Vaginal bleeding	1 [ ]
	Severe headache	2 [ ]
	Edema in upper limbs and face	3 [ ]
	Convulsion	4 [ ]
	Fever	5 [ ]
	Painful feeling when urinating	6 [ ]
	Severe abdominal pain	7 [ ]
	Other:_____	8 [ ]
	DK	9 [ ]
	Do not answer	10 [ ]
C.52	According to your opinion, when a woman in a labors, what signs indicate that she is in danger and needs to seek care immediately? *(This is multi-choice).*	
	Labor lasts over a day	1 [ ]
	Fever	2 [ ]
	Convulsion	3 [ ]
	Fetus limb or placenta goes out first	4 [ ]
	Other:_____	5 [ ]
	DK	6 [ ]
	Do not answer	7 [ ]
C.53	According to your opinion, after delivery, what signs indicate that the mother is in danger and needs to seek care immediately? *(This is multi-choice).*	
	Severe bleeding	1 [ ]
	Fever	2 [ ]
	Convulsion	3 [ ]
	Other:_____	4 [ ]
	DK	5 [ ]
	Do not answer	6 [ ]

C.54	According to your opinion, right after delivery, what signs indicate that the baby needs to be seen by medical staff? *(This is multi-choice)*.	
	Do not cry or cry weakly	1 [ ]
	Do not breath	2 [ ]
	Do not move	3 [ ]
	Purple skin	4 [ ]
	Deformity	5 [ ]
	Too small (less than 2500g of weight)	6 [ ]
	Other:_____	7 [ ]
	DK	8 [ ]
	Do not answer	9 [ ]
C.55	According to your opinions, within a week after delivery, what signs indicate that the baby needs to be seen by medical staff? *(This is multi-choice)*.	
	Cannot suck mother's breast	1 [ ]
	Fever	2 [ ]
	Convulsion	3 [ ]
	Difficult to wake up	4 [ ]
	Jaundice	5 [ ]
	Swelling/wet cord	6 [ ]
	Short breath	7 [ ]
	Purple skin	8 [ ]
	Do not have bowel movement or urinate	9 [ ]
	Other:_____	10 [ ]
	DK	11 [ ]
	Do not answer	12 [ ]

Part 3. Child Care

C.56	Was baby weighted after birth?	
	Yes	1 [ ]
	No	2 [ ] → **Move to C.60**
	Do not remember	3 [ ] → **Move to C.60**
	Do not answer	4 [ ] → **Move to C.60**
C.57	When was the baby first weighed?	
	Right after birth	1 [ ]
	Within one day	2 [ ]
	Within one week	3 [ ]
	After one week	4 [ ]
	Do not remember	5 [ ]
	Do not answer	6 [ ]
C.58	Who weighed the baby?	
	Relative	1 [ ]
	CHC health professional	2 [ ]
	Village health worker	3 [ ]
	TBA	4 [ ]
	Neighbor	5 [ ]
	Other_____	6 [ ]
	Do not remember	7 [ ]
	Do not answer	8 [ ]

C.59	How heavy was the baby? Number of kilograms..... DK/Do not remember..... Do not answer.....	 ___kg →**Move to C.61** 98 [ ] → **Move to C.61** 99 [ ] → **Move to C.61**
C.60	Cancel	1
C.61	Do you breastfeed this child? Yes..... No	 1 [ ] 2 [ ] → **Move to C.655**
C.62	When did you first breastfeed this child? Right after cutting cord..... Within 30 minutes after delivery ..... Within 1 hour after delivery..... Within 1 day after delivery ..... Over one day after delivery..... Do not remember..... Do not answer.....	 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6 [ ] 7 [ ]
C.63	What did you feed this child before the **first breast feeding**? *(This is multi-choice).* Nothing ..... Honey ..... Lemonade ..... Herb water..... Chewed rice ..... Rice soup..... Other:_____ Do not remember..... Do not answer.....	 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6 [ ] 7 [ ] 8 [ ] 9 [ ]
C.64	Within the first three days after delivery, did you squeeze the colostrums out before breastfeeding this child? Yes..... No ..... Do not remember..... Do not answer.....	 1 [ ] → **Move to C.66** 2 [ ] → **Move to C.66** 3 [ ] → **Move to C.66** 4 [ ] → **Move to C.66**
C.65	Why don't you breastfeed this child? Avoidance ..... Mother has disease ..... Baby did not suck ..... Other _____ Do not answer.....	 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ]

C.66	What food did you feed the baby yesterday during the day and at night? *(This is multi-choice)* Breast milk Milk Boiled rice/rice soup Instant nutritious powder Sugar Oil/fat Vegetable/vegetable boiled water Juice/fruits Fish/meat/egg Cassava/corn Beans Peanut/sesame Other_____ Do not remember Do not answer	 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6 [ ] 7 [ ] 8 [ ] 9 [ ] 10 [ ] 11 [ ] 12 [ ] 13 [ ] 14 [ ] 15 [ ]
C.67	How many times was this child fed yesterday during the day and at night? *(This is multi-choice)* Breast feeding Number of times As baby's need Other:_____ Eating Number of meals Do not answer	 _____times 97 [ ] 98 [ ] _____meals 99 [ ]
C.68	Are you currently breastfeeding this child? Yes No	 1 [ ] → **Move to C.70** 2 [ ]
C.69	When did you stop breastfeeding this child? Less than 12 months From 12-18 months After 18 months Do not answer	 1 [ ] 2 [ ] 3 [ ] 4 [ ]
C.70	When did you first feed this child with other food rather than breast milk? Not, yet In the first month In the second month In the third month In the fourth month After four months Do not remember Do not answer	 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6 [ ] 7 [ ] 8 [ ]
C.71	Has this child ever got diarrhea? Yes No DK Do not answer	 1 [ ] 2 [ ] → **Move to C.73** 3 [ ] → **Move to C.73** 4 [ ] → **Move to C.73**

C.72	When this child got diarrhea, did you continue breastfeeding/feeding him/her? Yes No DK Do not answer	 1 [ ] 2 [ ] 3 [ ] 4 [ ]
C.73	Is this child weighed monthly? Yes Yes but not regularly No Do not answer	 1 [ ] 2 [ ] 3 [ ] → **Move to C.75** 4 [ ] → **Move to C.75**
C.74	Who weighs the baby? Village health worker Women union's member CHC health worker Mother Other _____ Do not answer	 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6 [ ]
C.75	According to your opinion, what signs indicate that the child less than 2 years old needs to seek health care? *(This is multi-choice).* Fever Convulsion Difficult to wake up Do not eat for a day at least Vomit Short breath Diarrhea Other:_____ DK Do not answer	 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6 [ ] 7 [ ] 8 [ ] 9 [ ] 10 [ ]
C.76	Did this child get sick during the last month? Yes No	 1 [ ] 2 [ ] → **Move to C.78**
C.77	When this child was sick, what did you do first? Self-treat the baby Purchase drug Invite sorcerer Invite health staff Take the child to health center Do nothing Other:_____ Do not answer	 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6 [ ] 7 [ ] 8 [ ]
C.78	Did this child get vaccinated? Yes No Do not answer	 1 [ ] 2 [ ] → **Move to C.80** 3 [ ] → **Move to C.80**

C.79	According to your opinion, what diseases can be prevented by these vaccination? *(This is multi-choice).* TB ..... Poliomyelitis ..... DPT ..... Measles ..... Other:_____ DK ..... Do not answer.....	 1 [ ] **No change** 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6 [ ] 7 [ ]
C.80	Did this child take vitamin A? Yes..... No ..... DK ..... Do not answer.....	 1 [ ] 2 [ ] → **Move to C.82** 3 [ ] → **Move to C.82** 4 [ ] → **Move to C.82**
C.81	How many times? Number of times ..... DK ..... Do not answer.....	 _____times 98 [ ] 99 [ ]
C.82	*Interviewer weighs the baby* Weight	 _____kg
C.83	*Channel classified (weight/age)* Channel (A, B, C, D).....	 Channel____

Thank you!

_____/ _____/_____
Day Month Year

.....Full Name and Signature of Interviewer

Appendix 3: Training Calendar

Date	Content	Participants
1st day	*Morning:* ~ Brief introduction ~ Introduction of survey's objectives ~ Introduction of supervisors and interviewers' tasks ~ Introduction of sampling techniques ~ Sampling of mothers in clusters *Afternoon:* ~ Introduction of questionnaire ~ Discussion to exchange ideas on questionnaire with regard to terms and dialects ~ Role play of interviews in Kinh and ethnic languages ~ Discussion on role play ~ Group division	Leaders of Health Service and District Health; Technical officer and management officer of SC/US. Supervisors and interviewers
2nd day	*Morning:* ~ Pilot interviews in the community (in 2 hamlets of 2 districts) ~ Feedback, experience learnt *Afternoon*: ~ Meetings with authorities of two districts and officers of CTTEM Office on survey calendar, transport, accommodation, communication, etc. ~ Distribution of survey tools and necessary facilities, last reminding to supervisors and interviewers	Leaders of district Health Technical and management officers of SC/US. Supervisors and interviewers
3rd day 23/5/07 to 27/5/07	*All day:* ~ Household survey ~ Supervision of survey ~ Report ~ Experience learnt	Technical and management officers of SC/US. Supervisors and interviewers

Appendix C: Evaluation Assessment Methodology

The final evaluation of the CS-18 Vietnam project *Building Partner Capacity for Child Survival of Vietnamese Ethnic Populations* was conducted in accord with the methodology for participatory program evaluation [7]

Phase 1: Preplanning meetings (Evaluation Coordinating Group)	
Step 1: Define evaluation goals & objectives	Save the Children, Westport CT, and the Vietnam country office initiated the CS-18 FE process in accord with USAID/CSHGP guidelines [8]. The objectives established for this evaluation included all those delineated in the USAID guidance. They also included a focus on measuring progress toward targets established at baseline, and recommendations developed through a mid-term evaluation and MTE reassessment activity.
Step 2: Identify evaluation team members	Save consulted widely among peer organizations in the CS community and among MCH agencies to identify individuals experienced in the CS FE process. The team leader (Judith Fullerton) was nominated, then approved by the CS-18 CTO. The team leader then worked collaboratively with SAVE to identify a best mix of organizational and partner representatives to serve as team members.
Step 3: Plan logistical & administrative arrangements	The team leader worked with SAVE's national and country offices to plan the full detail of the timeline and calendar of activities for the FE. Logistical arrangements were initiated by the country office. These included obtaining all necessary clearances for travel to the project area. Interview appointments were made with government personnel at Ministry and Provincial levels. Final plans were made during a team planning workshop held prior to initiation of field activities.
Step 4: Develop visual framework of the project	This was accomplished during the pre-planning workshop. The strategic framework for the CS-18 project was supplemented by creation of a matrix that fully described the geographic and demographic characteristics of project beneficiaries.
Step 5: Orient evaluation planning workshop facilitators	A preliminary agenda was developed by the Team Leader in advance of the project, citing the steps to be taken in conducting the planning workshop. The agenda was negotiated and amended.
Phase 2: Evaluation planning workshop (Evaluation team)	
Step 6: Organize stakeholders into a working group	Members of the Evaluation team and support staff gathered for a three-day orientation and planning session focused on team-building, deliberation of methods and strategies that were consistent with the objectives of the evaluation and likely to generate the information that was desired and reaching consensus of ways of proceeding.
Step 7: Define evaluation questions	Team members reviewed the USAID FE guidelines in order fully to understand the focus of the FE. The team also developed additional questions that would serve the purposes of organizational learning about effective strategies that could be replicated in future projects.

[7] Aubel J. Participatory Program Evaluation Manual, 2nd Ed., CSTS Project, Washington DC, 1999.
[8] Guidelines for Final Evaluation USAID/GH/HIDN/NUT Child Survival and Health Grants Program. July 2006.

Step 8: Identify data collection sources and techniques	Individuals and documents were discussed as sources of data. These included: • Project M&E systems (tools) and the DHMIS • Individuals who could provide a complete picture of the history of this project, and its implementation within the country context (project staff past and present, collaborative partners) • Project beneficiaries (women, children <2, men, health workers) • Implementing partners at project and community levels Team members concurred that techniques would include: • Document review • Individual interviews (knowledge, skills and practices of health workers trained by the project) • Focus group interviews (knowledge, skills and practices of project beneficiaries, focused on behavior change as an outcome of project interventions) • Comparison of baseline and end-of-project KPC survey results; Rapid CATCH indicators; other project indicators and targets. • Facility observation (supplies, equipment provided by the project)
Step 9: Develop data collection instruments	Preliminary drafts of interview guidelines had been developed by the Team Leader in advance of the workshop. Team members reviewed these drafts, and amended them as indicated. The outcome of this activity was the generation of interview guidelines appropriate to the activities of the project, and addressed to each stakeholder/beneficiary group. The guides were also crafted to serve as "note-taking instruments" in order to assist the process of communication between team members and documentation of findings. Translation of the instruments to the Vietnamese language was accomplished by project personnel. The translators worked together to reach consensus on the meaning of each question so that the teams, working independently, were, nevertheless, asking similar questions. The interview guides were then produced as *dual language instruments*, (the "target" Vietnamese translation appeared below the "source" English wording) so that translators could follow the discussion in both languages.
Step 10: Finalize sample of data collection sites & interviews	This step was accomplished by the end of the pre-planning workshop. All team members concurred with the selection of communes to be selected as representative of a) phase of intervention, b) demography of beneficiaries. Two teams were formed, each represented by a Team Leader, a CS-18 project member, a Provincial Health representative from the opposite district, a SC staff member from the opposite district, and translators. The USAID Mission representative participated in the full calendar of field work, alternating between the teams on a daily basis.

Phase 3: Fieldwork: preparation, data collection & analysis (Fieldwork teams)	
Step 11: Prepare fieldwork teams: Data collection techniques and logistics	Initial preparation for the fieldwork was implemented during the pre-planning workshop. Logistical arrangements for transportation and lodging were made. Local support teams (drivers, translators) were organized. A strategy was developed for daily recording and reporting between teams, and for making amendments to the logistical plan, as necessary.
Step 12: Conduct interviews and observations	The calendar of activities follows this narrative.
Step 13: Analyze information collected	The team leader and a minimum of 2 additional members of each team took notes during focus group sessions. Team members conferred among themselves at the end of each working day to compare, augment and verify the information that was finally recorded on the summary field note log. This team conference served two important purposes: 1) The group discussion helped the team leader to glean all important information, and the nuances of the conversations, that might have been missed by any individual during his/her independent note taking. 2) Group members were able to clarify and correct, if necessary, any misinformation or positive bias that might have been introduced in the process of translation to the English language, given the fact that some interviews were conducted through 3 to 4 layers of translation from and to ethnic minority languages, and given the various English language abilities of the translators. Members of the two teams then convened at the end of each working day to share their findings with members of the opposite team. Discussion focused on interpretation of unexpected findings and highlights of successes or constraints that were identified in that day's work.
Step 14: Summarize fieldwork findings	The team reassembled at a post-evaluation workshop to engage in a fuller discussion of all findings, and to create summary statements that reflected these findings. The team leader led this discussion, with a focus on identifying strengths, challenges, and objectives still to be accomplished. Draft recommendations were developed.
Phase 4: Workshop to formulate lessons learned (Evaluation team)	
Step 15: Formulate lessons learned for each evaluation question	Lessons learned were drawn by the team, based on the information discussed in the workshop deliberations. These preliminary findings were shared with members of the Province Health Team, who offered suggestions for amendment and augmentation, with rationale. They also offered their own suggestions for recommendations that might emerge from the evaluation.
Step 16: Team assessment of the evaluation process	The team leader invited participatory evaluation of the evaluation planning and implementation processes. She also requested evaluation of her leadership.

Phase 5: Summarize evaluation results (Evaluation Coordinating Team)	
Step 17: Summarize evaluation findings & lessons learned	A draft report was written by the Team Leader, and shared with the Evaluation Team for their review and critique. Preliminary results and recommendations were also shared with SC office staff and other interested stakeholders (Ministry of Health, USAID mission representatives) based in Hanoi.
Phase 6: Development of an action plan (Key program stakeholders)	
Step 18: Develop an action plan based on evaluation findings	The action plan that responded to recommendations made for project activities was developed by members of the CS-18 project team.
Phase 7: Finalization, dissemination and discussion of evaluation report (Evaluation Coordinator and Evaluation Coordinating Group)	
Step 19: Write evaluation report	The team leader took responsibility to craft a draft report based on input from the Evaluation Coordinating Team and from her own assessments of other aspects of program management and implementation. The report was circulated among Evaluation Coordinating Group members for augmentation of findings, and for correction of errors
Step 20: Distribute and discuss evaluation results with program stakeholders	A preliminary dissemination workshop was planned for September 2007.

CS-18 Final Evaluation Schedule

Team 1
1. Judith Fullerton
2. MOH representative of QT province
3. Health staff of opposite district
4. Translator (Lan and Ha)
5. Mr Loi – Ha Noi USAID

Team 2
1. David Marsh
2. MOH representative of QT province
3. Health Staff of opposite district
4. Translator (Ngoc Anh)
5. CS-18 Project Manager (Kiem)

Pre-planning Workshop

Date	**Venue: Hanoi office**	
Day 1 Monday 9 July	**Topic**	**Lead Individual**
	Introduction	All
	Overview of the project and organization charts	SC project personnel
	Orientation to the participatory evaluation process	Judith
	Define the evaluation questions (CS FE guidelines)	Judith
	Identify data collection sources and techniques	Judith and David Team support
	Develop data collection instruments (Review and amendment of draft instruments)	Team
Day 2 Tues 10 July	Instrument translation	SC personnel
	Finalize sample of data collection sites and interviewees	Team
	Make final arrangements for field work	Team
	Interviews of SC personnel – Hanoi	Judith
Day 3 Wed 11 July	Participatory training for interviews	Judith
	Designation of logistical arrangements for a) daily recording of findings b) nightly reporting between teams c) storage and transport of writing and review of selected sections (if not completed in the field written or electronic files)	Team
	Make arrangements for post-field work workshop; invite external stakeholders	
	Selected interviews	Judith
	Travel to Quang Tri by night train (1900)	

Field Work

Day 4 : Thursday 12 July		
7.30-8.00 8.00-9.00 9.00-11.00	▪ Arrival at Dong Ha , Quang Tri ▪ Orient team members Meeting with Representative of: People's Committee, PHS, RH Center and W/U to inform them of the plans for the evaluation	
11.00-12.00	**Team 1** Group interview with : Directors of PHS, RH Center, Province health prevention center, Medical Secondary School and Province Hospital	**Team 2** Group interview with Province trainers/supervisors
12.30 – 14.30	Lunch at Dong Ha Town and then travel to Huong Hoa District	
14.30-15.00	Meet with Huong Hoa District Steering committee to share the evaluation schedule and then divide into two teams:	
15.00-17.00	**Team 1** Group interview with District steering committee at district PC office (Administration)	**Team 2** FGD with project district trainers/supervisors (Hospital, health facility and monitoring personnel) at District Prevention Health Center Office
17.00-18.00	Check -in Bao Son Hotel in Huong Hoa Town	
Day 5: Friday 13 July: Visit two communes in Huong Hoa District Departure time will depend on the distance from HH town to commune		
8.00 – 12.30	**Team 1** Visit **A XING commune** **(Phase 1)** **At commune level:** ▪ FGDs with Commune Steering Community and commune health staff (CHS) at commune health center (CHC), do observation CHC facility ▪ FGD with Community guides of 2 hamlets at CHC	**Team 2** Visit **THANH commune** **(Phase 3)** **At commune level:** ▪ FGDs with Commune Steering Community and commune health staff (CHS) at commune health center (CHC), do observation CHC facility ▪ FGD with Community guides of 2 hamlets at CHC
12.00-14.00	**Lunch and travel to TANG QUAN hamlet**	**Lunch and travel to THANH #4 hamlet**
14.00 – 17.00	**Team 1** **At hamlet level:** ▪ FGD with mothers of under two children at one mother's house -	**Team 2** **At hamlet level** ▪ FGD with mothers of under two children at one mother's house -

	observation her house (include in law people [mothers, sisters]) ▪ FGD Men group	observation of her house - ▪ Observe a breastfeeding support group meeting, and interview group members at a mother's house
Evening	Daily review meeting of evaluation team	
Day 6: Sat 14 July: Visit two communes in Huong Hoa District (Departure time will depend on the distance from HH town to commune)		
8.00 – 12:00	**Team 2** Visit **HUONG VIET commune** (Geographically distant; not successful) Travel from HH town to communes **At commune level:** ▪ FGDs with Commune Steering Community and commune health staff (CHS) at commune health center (CHC); do observation at CHC facility ▪ FGD with Community Guides of 2 hamlets	**Team 1** Visit **HUC commune** (success commune) Travel from HH town to communes **At commune level:** ▪ FGDs with Commune Steering Community and commune health staff (CHS) at commune health center (CHC); do observation at CHC facility ▪ FGD with Community Guides of 2 hamlets
12.00-14.00	**Lunch and travel to CA TIENG hamlet**	**Lunch and travel to HUC VAN hamlet** (a success hamlet)
14.00 – 17.00	**Team 2** **At hamlet level** ▪ FGD with mothers of children under age two at a mother's house - observation if her house ▪ FGD with men group	**Team 1** **At hamlet level** ▪ FGD with mothers of children under age two at a mother's house - observation of her house ▪ Observe a breastfeeding support group activity and interview group members at a mother's house
Evening	Daily review meeting of the evaluation team	
Day 7: Sunday 15 July - Free day		
Day 8 – Mon 16 July: Visit two communes in Dakrong District		
7:00 – 8:00	Travel to Dakrong District	
8.00 -9.00	Meeting with Dakrong District steering committee at PC office to share the evaluation schedule and then divide into two team:	
9.00– 11.30	**Team 1** Group interview with Dakrong District Steering committee at Dakrong PC Office	**Team 2** FGD with District trainers/supervisors at Dakrong Health Service Office

11.30 -13.30	**Lunch and travel to commune of phase 1 or 2. Team 2 work at commune; Team 1 work at hamlet of the same commune**	
13.30 – 17.00	**Team 2** Visit **DAKRONG commune** (phase 2) **At commune level:** ▪ FGDs with Commune Steering Committee and Commune health staff – observe CHC - ▪ FGD with Community Guiders of two hamlets at CHC	**Team 1** Visit **CHAN RO hamlet in DAKRONG commune** (phase 2) (not successful) **At hamlet level:** ▪ FGD with mothers of children under age two at a mother's house - observation of her house ▪ FGD men group
Evening	Daily review meeting of the evaluation team	
Day 9 - Tue 17 July: Visit two communes in Dakrong District **(**Departure time will depend on the distance from HH town to commune in Dakrong District)		
8.00 – 12:00	**Team 1:** Visit **HAI PHUC commune** (Phase 3) **At commune level:** ▪ FGDs with Commune Steering Community and commune health staff (CHS) at commune health center (CHC), observation of CHC facility ▪ FGD with Community Guides of 2 hamlets	**Team 2:** Visit **A NGO commune** (Phase 4) **At commune level:** ▪ FGDs with Commune Steering Community and commune health staff (CHS) at commune health center (CHC), observation of CHC facility ▪ FGD with Community Guides of 2 hamlets
12.00-14.00	**Lunch and travel to TA LANG hamlet**	**Lunch and travel to A LA hamlet**
14.00 – 17.00	**Team 1** **At hamlet level:** ▪ FGD with mothers of children under age two at a mother's house; observation if her house ▪ FGD men group	**Team 2** **At hamlet level:** ▪ FGD with mothers of children under age two at a mother's house; observation of her house ▪ Observe BF support group
Evening	Daily review meeting of the evaluation team	
Day 10 Wednesday 18 July:		
9.00 -11.00 Last of evening	▪ Debrief meeting among the team in Dong Ha office ▪ Presentation of preliminary findings to Province Health Ministry ▪ Fly to Hanoi at Hue airport	

Day 11 -14 Thurs 19 July – Sunday 22 July	
	Writing of report; generation of draft recommendations (Judith) Selected interviews (Judith)

Dissemination Workshop

Day 15: July 23		
9:00 – 12:00	Assessment of the evaluation process Formulation of lessons learned	Team
12:00 – 1:30	Lunch	
13:30- 17:00	Introduction of stakeholders	Ha
	Presentation of findings	Judith and David
	Discussion and summary of evaluation findings and lessons learned	Participants
	Development of an action plan for the post-project timeframe (**ongoing)**	Team and participants

Appendix D: List of Persons Interviewed and Contacted

Individual Contacted	Title/Relationship to the Project	Method of Contact	
		Group Interview	Personal Interview
Save the Children/National Office			
Dr. David Marsh	Sr. Child Survival Advisor		X
Save the Children/Vietnam Country Office			
Edgar Geolina	Acting Country Director		X
Tran Thi Kiem	CS-18 Project Manager		X
Pham Bich Ha	Health Program Director SCVCO		X
Ha Thanh Binh	Maternal-Neonatal Health Specialist		X
Ngo Thuy Nga	Finance Manager		X
Hoang Hai Tram	Accountant, SCVCO		X
Save the Children/Vietnam Quang Tri Province Field Office			
Tran Thi Lan	Project Coordinator		X
Quang Tri Province: Huang Hoa District			
Provincial Administrators/Leaders			
Dr. Tran Van Thanh	Director, PHS	X	
Dr. Phung Xuan Ty	Director, Preventive Medicine Center		
Dr. Doan Viet Dung	Director, Reproductive Health Center		
Dr. Nguyen Huu Ninh	Dean, Medical Secondary School		
Dr. Nguyen Van Thanh	Director, Provincial Hospital		
Dr. Mai Nam	Public Health Service		
District Administrators			
N = 8 individuals including : • Vice Chairman: District People's Committee (Chairman, Project Steering Committee) • Director: District Hospital (Vice Chair, Project Steering Committee) • Director, District Health Prevention Center • Staff: District Education and Training Department (Member, Project Steering Committee) • 2 members of the Staff: People's Committee • 1 member of the Project Steering Committee • 1 Representative of the Vietnam Red Cross (Member, Project Steering Committee)		X	
Trainers/Supervisors: Provincial Hospital			
Trainers	N = 11	X	
Supervisors	N = 3		

Individual Contacted	Title/Relationship to the Project	Method of Contact	
		Group Interview	Personal Interview
Medical and Midwifery Staff (Trainers/Supervisors): Huong Hoa District			
Trainers	N = 9	X	
Supervisors	N = 7		
Community Leaders			
23 members of the Steering Committee, including representatives of the Women's Union		X	
28 Community guides, some of whom were hamlet health workers or members of the Women's Union.		X	
13 members of Commune Health Staffs		X	
Community Beneficiaries			
Women of children <2 years	N = 32	X	
Older Women	N = 7		
Other women	N = 2		
Men (all ages)	N = 11	X	
Members: Breastfeeding Support Group	N = 15	X	
Quang Tri Province: Dakrong District			
District Administrators			
N = 11 individuals including: • Vice Director of Women's Union • Vice Director Youth Union • 2 members: People's Committee • Staff member: IEC Section • Staff member: Health services • Secretary of the Steering Committee • Representative: Farmers Association • Representative: Population Family Planning Network • Staff member: Education Section • Director of Preventive Medicine		X	
Medical, Midwifery and Nursing Staff (Trainers/Supervisors): Dakrong District			
Trainers	N = 1	X	
Supervisors	N = 5		
Community Leaders			
11 members of the Steering Committee, including the population motivator, 2 hamlet leaders and 4 commune health staff		X	
15 Community Guides, including the hamlet population motivator, representative of the women's union, village health workers and the hamlet leader.		X	
4 members of commune health staff (other than Steering Committee)		X	
Community Beneficiaries			
Women of children <2 years	22		
Older Women	5	X	

Individual Contacted	Title/Relationship to the Project	Method of Contact	
		Group Interview	Personal Interview
Other women	30		
Men (all ages)	15	X	
Members: Breastfeeding Support Group	4	X	
Project Consultants			
Vu Khac Luong	Team Leader: Endline KPC		X
NGO Representatives			
Mr. Thong	Program Unit Manager PLAN International		X Telephone
Nguyen Thi Kiem	Project Office PATH		X
Other Informed Contacts			
Nguyen Minh Phuc	CS-18 project officer, Quang Tri June 2005 – July 2007		X
Nguyen Anh Vu	Previous CS-18 Project Manager		X
Matthew Frey	Previous SC VNCO Director		X Telephone

Appendix E: Documents Reviewed

CS-18Vietnam Project Documents

- Application (Dec 2001)
- Detailed implementation plan (April 2003)
- First annual report (Oct 2003)
- Second annual report (Oct 2004)
- Mid-term Evaluation (Nov 2005)
- Mid-term Evaluation Amendment (April 2006)
- Fourth annual report (Oct 2006)

CS-18 Vietnam Supplementary Documents

- Ha PB. Maternal and newborn care among the VanKieu and Pakoh minorities in Vietnam's central highlands. PowerPoint Presentation. October 2001
- Thuan TD, Ha PB, Vu NA, Marsh D. Practice of household behaviors and use of health services for maternity, newborn, and child care: Report of a baseline household survey in Dakrong and Huong Hoa Districts of Quang Tri Province, Vietnam. Save the Children, Viet Nam. April, 2003
- Marsh D, Vu NA, Ha PB, Khanh VN, Jones E. Improved maternal and newborn care practices among ethnic minorities in the Vietnamese highlands using the positive deviance approach. PowerPoint Presentation, April 2006.

Trip Reports

- Shaver T. Vietnam trip report (ACNM) March 16 – April 2, 2002
- Marsh D. Asia trip report (SAVE) Sept 12 - Oct 6, 2003
- Marsh D. Vietnam trip report (SAVE) Sept 23 - Oct 13, 2004.
- Marsh D. Vietnam trip report (SAVE) Feb 11 – Feb 18, 2005.
- Marsh D. Vietnam-Myanmar trip report (SAVE) Nov 3 – Nov 17, 2006

Videos

Untitled video produced by Huong Hoa District Health Staff depicting CS-18 activities.

Appendix F: Community Profile

SAVE THE CHILDREN/VIETNAM – CS-18

PROJECT COMMUNES AND PHASES
(Shaded rows indicate districts, communes and hamlets visited by the FE team)

District Phases	Communes	N of hamlets	Population	Ethnicity	Accessibility	"Not successful"	"Successful"	Breastfeeding support groups	NERP
DAKRONG									
PHASE 1 Nov 03- Dec 04	MO O	5	1487	Van Kieu					
	TRIEUNGUYEN	3	1239	Kinh				X	
	TA RUT	9	3116	Pa Ko				X	X
	A BUNG	7	2190	Pa Ko				X	X
	HUC NGHI	4	1251	Van Kieu					
PHASE 2 Mar 04 – Mar 05	KRONG KLAN	5	2685	Kinh/ Van Kieu				X	
	DAKRONG	10	4331	Van Kieu	Difficult	Chan Ro		X	
	HUONGHIEP	10	3479	Van Kieu				X	
PHASE 3 May 05 – April 06	HAI PHUC	3	472	Kinh/ Van Kieu			Ta Lang	X	
	TA LONG	9	2314	Van Kieu					
	BA LONG	20	2682	Kinh					
PHASE 4 May 06 – May 07	PA NANG	9	2453	Van Kieu					
	A NGO	9	2469	Pa Ko			A La	X	X
	A VAO	9	2001	Pa Ko			X		
HUONG HOA									
PHASE 1 Dec 03- Dec 04	TAN THANH	8	2751	Kinh					
	TAN HOP	5	1636	Kinh/ Van Kieu					
	A XING	7	1957	Van Kieu/ Pa Ko	Difficult	Tang Quan			
PHASE 2 Jan 05 – Dec 05	PA TANG	9	2709	Van Kieu					
	A DOI	12	2637	Van Kieu					
	HUONG SON	7	1766	Van Kieu					
	HUONG LOC	10	2153	Van Kieu					
PHASE 3 May 05 – April 06	TAN LONG	10	3095	Kinh				X	
	TAN LAP	8	3541	Van Kieu				X	
	KHE SANH	8	10067	Kinh					

District Phases	Communes	N of hamlets	Population	Ethnicity	Accessibility	"Not successful"	"Successful"	Breastfeeding support groups	NERP
	THANH	10	2775	Van Kieu				Thanh 4	
	THUAN	14	3581	Van Kieu				X	
	XY	6	1527	Van Kiue				X	
	HUONG PHUNG	12	3770	Kinh/ Van Kieu				X	
PHASE 4 May 06 – July 07	A TUC	9	1963	Pa Ko				X	
	HUONG TAN	7	2522	Van Kieu				X	
	HUC	9	3062	Van Kieu			Huc Van	X	
	HUONG LINH	6	2035	Van Kieu				X	
	HUONG VIET	5	1171	Van Kieu	Difficult	Ca Teng		X	
	HUONG LAP	8	1285	Van Kieu				x	
	LAO BAO	12	8459	Kinh					
	TAN LIEN	12	3622	Kinh					

Appendix G: Publications and Presentations

See Appendix I for Working Papers, which we hope to further develop into publications and/or a panel presentation at the Asia-Pacific Academic Consortium for Public Health, which will hold its annual scientific conference in Hanoi in 2008.

Appendix H: Electronic Copy of the Report

(Attached only to the copies sent to USAID/Washington, CSTS+, and VNCO)

Appendix I: Special Reports

WORKING PAPERS 1-3

1. Pham Bich Ha, Nguyen Anh Vu, Nguyen Thi Huong, Truong Thi Xuan, David R. Marsh, Why Minority Mothers Do Not Practice Optimal Maternal, Newborn, and Child Health Behaviors In Quang Tri Province, Viet Nam: A Baseline Behavioral Determinants Study, ***SAVE THE CHILDREN CS-18 WORKING PAPER SERIES: NO. 1***, Save the Children, Hanoi, April 16, 2003.
2. David R. Marsh, Pham Bich Ha, Tran Thu Kiem, Judith Fullerton, Community Capacity in Quang Tri Province, Vietnam – A Measurement Pilot-Test During the Final Evaluation of a Five-Year Child Survival Project, ***SAVE THE CHILDREN CS-18 WORKING PAPER SERIES: NO 2***, Save the Children, Hanoi, Vietnam September 8, 2007.
3. David R. Marsh, Vu Ngoc Khanh, Pham Bich Ha, Tran Thi Kiem, Nguyen Anh Vu, Emlyn Jones, Acceptability, Feasibility, Quality, Effect, and Sustainability of a "PD-Plus" Approach for Improving Newborn, Child, and Maternal Care in Quang Tri Province, ***SAVE THE CHILDREN CS-18 WORKING PAPER SERIES: NO 3***, Save the Children, Hanoi, Vietnam December 19, 2007.

SAVE THE CHILDREN WORKING PAPER NO. 1

Why Minority Mothers Do Not Practice Optimal Maternal, Newborn, and Child Health Behaviors In Quang Tri Province, Viet Nam: A Baseline Behavioral Determinants Study

Pham Bich Ha[a], Nguyen Anh Vu[a], Nguyen Thi Huong[b], Truong Thi Xuan[b], David R. Marsh[c]

Draft 6
April 16, 2003

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[c]Save the Children Federation, US, Headquarters, Westport, CT, USA

SUMMARY

Introduction Behavior change is central to public health interventions. As Save the Children launches a five-year child survival project in two minority districts in Quang Tri Province, we wanted to complement baseline household and health facility surveys with a behavioral determinants study to identify the prevailing maternal, newborn, and child health practices and to describe the reasons for these behaviors to inform our behavior change interventions.

Methods In March 2003, we visited three communes in Da Krong and Huong Hoa Districts. We conducted 26 in-depth interviews (17 in Huong Hoa) and four group discussions (two in Huong Hoa) of women with children less than age five months as well as one review of a recent newborn death. Initially we planned to use the in-depth interviews to characterize community norms and the group discussions to test eight "elicitation questions," which had been shown earlier in Quang Tri to efficiently elucidate behavioral determinants. Based on field realities, we modified the protocol, asking the elicitation questions at the end of 16 in-depth interviews and using the group discussions to further describe community norms. Two teams of two researchers (facilitator and note-taker) conducted all studies. We computerized all notes in Vietnamese and organized them according to care for: pregnancy, delivery, postnatal period, immediate newborn period, immediate breastfeeding, exclusive breastfeeding, and children less than 24 months. We identified beneficial and harmful practices for each theme and characterized the determinants of harmful practices as internal (knowledge, beliefs, confidence, etc.) or external (norms, time, service availability and quality, etc.).

Results The ethnic balance of interviewees (19 Pakoh and 47 Van Kieu) mirrored their representative populations in the two districts. A "good woman" obeys her husband, performing household chores and field work from dawn to dusk. Her diet is monotonous, whether pregnant or not: rice, cassava with a few vegetables or fruits and MSG. There are no pregnancy-related taboos or "eating down." She obtains an antenatal care (ANC) check-up if available, especially for reassurance that a difficult delivery is not anticipated. If she receives tetanus vaccinations or iron, she does not know why. Birth planning consists of her gathering roots for a postpartum tea, identifying a local woman to assist with some birth tasks, gathering extra wood, and preparing old clothes for the newborn. She has an incomplete understanding of danger signs (aside from breech and prolonged labor), since she believes that the birth process is a normal event. She works until labor commences. Delivery is highly unclean (especially the blood), so she delivers away from the main living area to prevent others from falling ill, performing key tasks herself (receiving the baby, handling him, cutting the cord). An attendant helps set up the delivery area and boils water for tea or bathing. The mother delivers squatting. She ignores the newborn until her placenta is expelled, believing that an undelivered placenta, especially if separated from the baby, will withdraw up to her heart and kill her. Thus, she and all attendants vigorously massage her abdominal to force it out. She then ties the cord once, usually with hemp; cuts it either with a razor blade or bamboo stick; and then sometimes applies charcoal or other powder to the stump. She then wipes him, wraps him, sets him aside, and buries the placenta. Then she bathes the baby, wraps him in different clothes, sets him aside again, and bathes herself. Since the newborn is not a full family member until a ceremony after cord separation, any illness or death is attributed to fate. Reported newborn danger signs include: not breathing or moving after birth and, for older newborns, cessation of sucking, warm to touch, persistent crying, coughing, and diarrhea The mother spends one to two weeks postpartum resting by a continuous fire, warming herself to dry the blood, consuming copious amounts of herbal tea, and daily bathing herself and her newborn. The family only seeks postnatal care for difficulties, such

as fever, excessive bleeding, or extreme fatigue. Initiation of breastfeeding occurs no sooner than two hours postpartum and requires an active, crying infant. She neither offers prelacteal feedings, nor attempts to breastfeed a quiet baby. She expresses and discards her initial colostrum because it is old and spoiled or contaminated with vegetables (from her diet), which are unfit for a newborn. Nearly every mother gives complementary feeding in the first two months because of crying, hunger, watery breastmilk, or her poor diet (unlike Kinh mothers), and especially because she returns to field work about two weeks postpartum. She leaves the infant in the care of his siblings or grandmother. The mother prepares the day's food each morning, storing it in small baskets, one for each family member. Adults drink boiled tea; children drink untreated stream water. By age eight months, infants eat the family menu, avoiding some diarrhea-causing vegetables. Indeed, fruits and vegetables are abundant in these hamlets, but most are not consumed for lack of time, taste, or expectation of benefit. Many families raise livestock for sale, but not for family consumption except for special events. Van Kieu hamlets had *sim* houses, which provided evening and overnight separate accommodations for adolescent girls and boys. …

Discussion Overall, there were no differences regarding care and its determinants for mothers, newborns, and children in these two ethnic groups (apart from the *sim* houses). We found examples of beneficial and harmful practices for each care theme although, in most cases, the benefits were incomplete (Table 2). We characterized determinants of harmful practices as internal or external because programmers can address the former at the individual beneficiary level while the latter require either group change or environmental change (Table 3). The elicitation questions in their current form were not as useful as expected, probably because these non-literate, agricultural, isolated women could not easily understand abstract or hypothetical questions. The Pakoh and Van Kieu people valued new or "modern" information, and we are optimistic that these communities can learn better behaviors quickly, especially if they are provided opportunities to practice them. …

INTRODUCTION

All public health interventions require behavior change. Thus a "behavioral determinants" study is an essential complement to other quantitative baseline surveys conducted for Save the Children's (SC) child survival project, "Building Partner Capacity for Child Survival of Vietnamese Ethnic Populations" in Quang Tri Province of Viet Nam's North Central Region. Household and health facility surveys (ref) inform key indicators of reported use of services and household practices. This study will both flesh out the range of practices perhaps not anticipated in the closed-ended quantitative survey approach and characterize the reasons for certain behaviors.

SC has a long history of behavior change in child health programming in Viet Nam. We have developed, refined, and championed the "positive deviance" (PD) approach (refs) to improving child nutritional status through improved child care and feeding. A key approach in our model has involves neighborhood-based group "learning through doing." Responding to the interventions' applied adult learning theory, mothers of malnourished children develop new confidence, skills, norms, and knowledge that enable them to rear healthier children. SC recently launched a Positive Deviance Initiative, one aim of which is to better understand and apply the theory of behavioral determinants to PD-informed programming. This child survival project will test the PD approach to improve not only child growth but also maternal and newborn care and breastfeeding. Indeed, we hope to develop and test a "PD-Plus" approach, perhaps based on eight "elicitation questions" (ref.) which have been shown to efficiently characterize behavioral determinants in some settings.

The aims of this study are (1) to identify normative maternal, newborn, and child care practices among target beneficiaries in Da Krong and Huong Hoa Districts; (2) to identify the determinants which enable or prevent women from practicing these behaviors; and (3) to assess the suitability of the elicitation questions in this setting. The SC team will use the findings from this study to develop appropriate, feasible, culturally acceptable behavior change interventions in Quang Tri.

METHODS

Setting We visited the two main minority ethnic groups in two districts in Quang Tri Province in March 2003. In Da Krong District, we spent three days in Ta Long Commune (Van Kieu and Pakoh ethnic groups), and in Huong Hoa District we spent seven days in Thanh Commune (Van Kieu ethnic group) and in A Tuc Commune (Pakoh ethnic group). Typically, one ethnic group will inhabit a given hamlet, but both will be present in many communes. Intermarrying is common between the Pakoh and Van Kieu. Given our prior research in and familiarity with Da Krong District (Pakoh Child Rearing Study - SC/US; Understanding, Awareness, and Practices of Pregnancy and Childbirth in Pakoh and Van Kieu Communities in Da Krong District, Quang Tri Province - SC/US, PATH; Safe Motherhood Project in Da Krong District, Child Survial-18 Application: Building Partner Capacity for Child Survival of Vietnamese Ethnic Populations" in Quang Tri Province of Viet Nam's North Central Region), we spent more time in Huong Hoa District.

Design We used in-depth interviews and focus group discussions, supplemented by observations. Based on successful pre-pilot work in January 2003 (Ha and Marsh, Trip Report to Quang Tri), we intended to ask the elicitation questions in the group discussions, first having identified "doers" and

"non-doers" and then negotiating behavior change options. But the questions proved difficult in that setting in their current form. Thus, we used the group discussions to further describe community practices and beliefs regarding maternal and child care, and we asked the elicitation questions at the end of 15 of the 26 in-depth interviews.

Subjects At each commune we visited two hamlets where we interviewed seven to ten mothers with children under age five months at their homes. And we conducted one to two group discussions with mothers with children under age two years. We planned to conduct 30 in-depth interviews, but we stopped at the 26th informant when little new information emerged, and we conducted four group discussions.

Sampling We selected key informants by meeting with commune midwives, village health workers, and Women's Union members who led us to families with children under age one year. If the mother was not at home, they led us to another family to interview. . We selected participants for the group discussions by asking village health workers and Women's Union members in one hamlet to call mothers with children under age two years to gather in the house of a woman, a village health worker, or the hamlet leader where people in the hamlet often gather for a hamlet meeting. We identified 27 neonatal deaths by asking village health workers, Women's Union members, and the above identified interviewees to identify families which had a baby die within one month of birth. We had the time to conduct a single interview for this study; we plan additional interviews this summer.

Variables Our goal was to describe normative practices relating to maternal and newborn care (the "what") and the reasons or determinants (the "why") for these behaviors. In addition, we tested the eight "elicitation questions" (reference) to characterize critical determinants of selected model practices such as use of antenatal check-ups or practice of immediate breastfeeding among identified "doers" and "non-doers." We used the following questions in group discussions to introduce the selected behaviors of interest.

- Why do pregnant women need ANC check-ups?
- Why do mothers not exclusively breastfeed young infants?
- What do mothers think about colostrum?
- Why do mothers or other community birth attendants delay providing immediate newborn care?
- What do mothers or other community birth attendants to if the newborn does not breathe after birth?

We used locally made dolls with attached placentas to enable mothers to demonstrate the details of newborn care. We took notes during the interview, including their responses and our observations (i.e., breastfeeding practices, infant clothing, menu, drinking water, sanitation habits, and the like).

We also conducted one case history with a mother whose newborn died recently. The case history was conducted at the mother's home with the mother and her family. We sought information according to the steps along the "pathway to survival," i.e., danger sign recognition, home care, care-seeking, quality of care, and compliance with care. We focused on the "what" and the decision-making processes.

Field Methods Mothers generally work in the field during the day, so we visited key informants either early in the morning or after they came back from the field. We asked village health workers to request some mothers to postpone their departure for the field for two hours so we could interview them before they went to work. We conducted the group discussions at night or in the middle of the day before they returned to work. The group discussion was conducted at the house of a member of the group or at the house of the *Gia lang* (a respected male hamlet elder).

Two pairs of two researchers each, one from SC and one from the Research and Training Center for Community Development conducted the studies. During the interview, one interviewed while the other took notes; during the group discussion, one facilitated while the other took notes. At the end of each interview the two researchers shared their comments and observations, which they added to the field notes. At night the whole team meet again to review what they learned, identify questions to adapt, and prioritize remaining information gaps. The whole team conducted the field work in one hamlet at a time.

Analysis After data collection, all field notes were computerized and categorized and reviewed

according to care theme: pregnancy care, delivery care, postnatal care, immediate newborn care,

immediate breastfeeding, exclusive breastfeeding, and care for children under two year old.

Regarding the doer/non-doer analysis using eight elicitation questions, we reviewed all responses, identified all behavioral determinants, developed a coding scheme (i.e., combining closely related phenomena), coded responses, and developed a matrix (Figure 3) to compare the behavioral determinants for each key behavior among doers and non-doers.

The field notes of all interviews and group discussions was read and presented in the report following final themes: (1) gender roles; (2) antenatal care; (3) labor, delivery, and immediate newborn care; (4) postnatal maternal care; (5) routine newborn care and breastfeeding; (6) danger signs; (7) infant care and feeding; (8) food availability; and (9) health services. We then present a case of a newborn death that illustrates many of the findings in themes 1-6 and 9. For clarity, we refer to the newborn throughout as masculine, except in the case study in which the newborn was a female. We identified beneficial and harmful practices for each theme and characterized the determinants of harmful practices as internal (knowledge, beliefs, confidence, etc.) or external (norms, time, service availability and quality, etc.).

RESULTS

We interviewed 26 informants separately and 40 women in four group discussions, two each in Huong Hoa and Da Krong (Table 1). Although we gathered information from the same number of women (33) in each district, we conducted more key informant interviews in Huong Hoa District than in Da Krong District (17 vs. 9, respectively) since this was a new programming site for SC. Overall, the ethnic balance (19 Pakoh and 47 Van Kieu) mirrored their population in the two districts**.** All women who participated in the in-depth interviews and who knew their age, reported

being from age 19 to 31 years old. Fifteen of the 26 did not remember or know their age. One was in her late forties and had had 14 children with only seven surviving, including the youngest, a three-month old. Ten of the 26 key informants had lost one to seven of their children at age one day to two months. The 40 women who participated in the group discussions reported ages from 19 to early forties although many did not know. They reported from one to eight children. No informant spoke Vietnamese fluently, so they communicated in their local language. Overall, respondents participated in all data collection efforts with interest and enthusiasm, and there were no refusals.

Overall, the findings reported by the two groups were nearly indistinguishable; there were no differences regarding caring for mother, newborn and children with their behavioral determinants in these two communities; and we only highlight ethnic differences in those unusual circumstances where they exist.

Gender Roles

Good Man A good man does "man's work:" cultivating land, fishing, hunting, and constructing the house. A good man neither gambles nor beats his wife. Indeed, he helps his wife with some household chores. A man also works in the field with his wife, but rarely carries anything on his back on the way home from the field except his machete. Meanwhile his wife carries a basket, which is full of firewood or products from the field even she is pregnant or carrying an infant on her chest. The man is not supposed to carry firewood or fetch family water as this is a woman's work. However, if a man's wife is sick or has just given birth, a good man often helps his wife with heavy work, such as carrying firewood or fetching water.

Good Woman A girl is good if she obeys her parents. She works hard in the field and she does housework diligently. Once she gets married, she is supposed to obey her husband. Every day, she should get up early in the morning, go to the stream to wash the family's clothes and fetch water for the day, and return home to prepare rice for the family. Rice is the main food for both breakfast and lunch for her and her husband in the field, and for her children left at home. Her children will take care of each other during the day. She goes to the field to tend her rice, cassava, corn, and banana plantings. When finished in the field, she goes home with a basket of firewood or food from the field. Rarely is a woman seen going home from the field without a basket on her back. When she gets home, she starts pounding rice for dinner. She then goes to stream for a bath and to fetch drinking water. Then she cooks, feeds the baby, eats with her family, washes the dishes, and cleans house. She finishes her housework around 8 pm and goes to sleep.

Decision making The husband keeps the money, purchases family items, and makes decisions about house construction, planting fields, and sending children to school. A woman always follows her husband's decision. Parents-in-law also make decisions when the couple is young since they have little experience and information, and they often live with their in-laws.

Sim *Sim* is a common practice in all Van Kieu (but not Pakoh) hamlets. Girls, age 15 years and older, do not sleep at their homes but gather in a *sim* house. After returning from the field, having dinner with her family, cleaning dishes, and doing other house work, a girl goes to a *sim* house in the hamlet to stay overnight with her girl friends. The *sim* house resembles other houses in the hamlet and often belongs to a widow or a single woman, either divorced or never married. Girls gossip about their work and community events. If a neighbor has a television, girls might first gather at the

sim house, then watch a televised movie at the neighbors', and then return to the *sim* house around 10:00 pm. Not surprisingly boys gather at the *sim* house to chat with the girls. They make friends, talk and tease each other. If a boy falls in love with a girl, he may ask her to go out for more private conversation. If she agrees, the boy and girl go out for several hours and then return to their respective *sim* houses for sleeping. *Sim* house owners do not allow boys and girls to overnight in the same house unless the house is very big and partitioned to separate the boys and girls.

We talked with four girls at a *sim* house in a Van Kieu hamlet of Da Krong District. They were friendly. One, a Kinh speaker, actively engaged us in conversation, while the three others remained shy since they only knew the Van Kieu language, which we did not know. They had no access to health information as no one taught them, they had no books, and some could not read or write. They wanted us to bring them women's health information.

Antenatal Care

Workload A woman usually knows when she gets pregnant, and she calculates nine months from her last menstrual period to estimate her expected date delivery. During pregnancy, a woman works as usual both in the field and at home until the day she begins labor or she is too tired to go to the field. Otherwise, she routinely goes to the field, carries firewood, fetches water, pounds rice, cooks, and takes care of her children and family. Sisters-in-law or her husband's other wife sometimes support her during this difficult period as they already have experienced or know they will experience similar fatigue and discomfort in the future. A thoughtful husband will sometimes also help carry firewood.

Diet A pregnant woman usually has the same diet as when she is not pregnant. Her daily main meal is rice or rice with cassava accompanied by banana flower, green jackfruit, or bamboo shoot, cooked with salt, pepper, and MSG. The communities have other kinds of vegetables, such as potato leaves, *rau tau bay* and *rau don* (wild vegetable) but they rarely eat them because "they are not tasty," and "we don't have time to collect them." They want meat, fish, milk, or sugar (the only "good foods" defined by community), but unless their husbands buy or catch fish, they must go without.

There is no "eating down" during pregnancy, and there is no food avoidance or "taboo foods." These women have the opposite challenges. Their babies are rarely born too big, and pregnant women often have neither enough food to eat nor enough variety in their diet.

Check-Ups Most mothers have ANC check-ups if village health workers call them and if they know the service is available. Almost all fear a breech delivery, which can kill both the mother and the baby, so they obtain ANC to know whether they will have a "difficult delivery." An expectant mother also wants to know her status and that of her fetus, but she dares not ask the midwife because she "does not know what to ask and how to ask." A mother may refuse all medical service during her pregnancy and labor because she feels ashamed of her pregnancy. Some seek ANC "because other pregnant women use ANC so I do the same thing."

Iron and Tetanus Vaccination Some women receive "tonic medicine" or iron pills at ANC, and they take the medicine because the health staff says that the medicine is good for their health. However, they do not know which medicines they took or how effective they were. They often

receive one or two boxes of iron pills, finish them, but obtain no more. Pregnant women receive "TT" vaccinations, but often only once, and they do not know why they need it.

Birth Preparedness During pregnancy a woman looks for herbs or roots in the field, which are important ingredients for a restorative tea for her after delivery. In addition, her in-laws, mother, and husband also look for herbs. The roots and herbs are dried and stored in a woven bamboo drying shelf hung over the fire place.

> *These root and herbs help reduce the new mother's abdomen pain, stop bleeding faster, and help her to have pink cheeks and good health.* (In-depth interview with 19 year old Pakoh woman in Huong Hoa District)

A pregnant woman will often gather firewood for the family for when she cannot go to the field. Her family also stores rice and saves some money for buying food during the time she has to stay home after delivery. The mother will also set aside some old clothes for the new baby. Respondents had no idea about potential maternal or newborn complications, so they did not prepare for them. But they do identify a local woman to assist with certain "clean" aspects of delivery.

> *We do not prepare anything. When I have labor, I use the bamboo blade to cut the cord and the string from this sack to tie the cord.* (in-depth interview and group discussion)

Labor, Delivery, and Immediate Newborn Care

Birthing Place Pakoh and Van Kieu women commonly deliver at home in a corner of the kitchen, in a small room off the house, or in a small new stilted tent made especially for the delivery by her husband during her 8th month. Delivery is not allowed to take place in the main house or the main room of the house since delivery is considered as unclean, which may make the house unclean causing others to get sick. Delivering at home assures that she will have a fire near-by so she can perform *ho lua* (warm herself by the fire at home). She warms her face, arms, belly, and back for many days and nights after birth. Fire helps her recover quickly from the pains and weariness of childbirth and restores her health. Even in hot summer the mother still conducts *ho lua* for one to three weeks after birth. In addition, home delivery assures that she will have her husband, relatives, and friends with her during the process.

Birth attendant Delivery, particularly the associated blood, is unclean so the mother must experience key aspects of the process (receiving the baby, handling him, cutting the cord) alone. When a woman notes the onset of labor, she often asks her husband to call a previously identified woman to help. Such women often are sisters-in-law or neighbors with experience in delivery who are still in reproductive age. Families will not call women who are not likely to bear more children. Rather they prefer a woman whom the mother will be able to help in her future labor. They call on such women for their experience, rather than their manual assistance.

A neighborhood attendant will stay with the mother until she completes her delivery. She covers the door and windows to make sure no one can see the delivery. She makes sure water is available. She

cooks water with roots for the mother to drink. She boils water for the mother's bath after delivery. She makes a bamboo blade and take strings from a sack for tying the cord if the mother has not already prepared for that. If the mother has a clean delivery kit, the attendant will open it, removing the razorblade and string for tying the cord. A family will only call a midwife for a home visit if they trust her and live close to the Commune Health Center (CHC).

Delivery and Immediate Newborn Care When the mother is in labor, she squats on the floor, holding a rope suspended from the roof or holding a vertical support pole to hasten delivery. Meanwhile, an attendant supports her shoulders to keep her posture erect, while another may massage her back. Nothing covers the floor where she delivers, so amniotic fluid and blood will pass through the slats in the floor to the ground or woodpile below. While the baby is being expelled, the mother sits down on the floor to guide the baby's complete delivery. She then places the baby between her legs with the cord still connected to the undelivered placenta. The baby remains there unwrapped and undried until the placenta is expelled. Believing that an undelivered placenta, especially if separated from the baby, will withdraw into the mother's belly up to her heart, which can kill her, she and all attendants vigorously massage the abdominal to force it out. This usually takes about five minutes.

In some cases, the placenta does not deliver easily or quickly, and the baby lies on the floor undried and unwrapped. The mother may cover him loosely with a thin cloth while waiting for the placenta to come out. She dares not dry the baby before it delivers because this may cause the cord to break, allowing the placenta to withdraw into the mother's belly up to her heart causing death.

Only after the placenta is delivered will the mother care for the newborn. She uses string to tie one knot in the cord at a distance of the length of her index finger from the baby's abdomen. She then uses bamboo or a blade (either a new one from the CDK or from a shop, or a used blade from home) to cut the cord. She wipes the blood off the cord stump with a piece of cloth or one of her old dresses. Some mothers apply antibiotic powder if they have it, charcoal powder, , or herbs to the cord stump and then leave it uncovered. While the mother is still in pain, one assistant takes a piece of glowing red charcoal from the fire, dips it in a bowl of water to cool it, and crushes it into powder. People believe that charcoal powder, antibiotic powder, or herbs help dry the cord and prevent swelling. Some people do not apply anything to the stump, but they apply charcoal powder to the navel after the cord falls off. After caring for the baby's cord, the mother uses an old cloth, usually one of her shirts or dresses, to wipe the baby's face, head, chest, arms, legs and finally the back. She then wraps him in another dress and sets him aside. Sometimes a mother bathes her baby right after the cord is cut, after which she dries and wraps him and sets him aside.

After the baby is wrapped and set aside, the mother puts the placenta in a plastic sheet, an old cloth, or a dried pumpkin and buries it in the garden. If she delivers at night, she will leave it in a corner of the kitchen and bury it in the morning. While she is burying the placenta, the attendants boil bathwater for the mother and child. When the mother comes back from burying the placenta, she bathes the baby in warm water. She sits on the floor with her legs stretched out. She places the baby, supine on and parallel to her outstretched legs, feet against her abdomen, and gently uses her hands to rub warm water from a small basin on the baby's head, chest, arms and then legs. She then dries him with clothing from the top to bottom. After the baby is clean, she wraps him in a dry dress or cloth, and sets him in a dry, clean place close, but not too close, to the fire. At that time, the mother takes a warm water bath herself. The attendant pours water on her body, while the mother washes

away the unclean aftermath of labor. The attendant helps dry her. Finally, the mother lies down to rest on the floor between her baby and the fire.

In summary, the mother manages labor and delivery, cuts the cord, dries and wraps the infant, and wraps and buries the placenta. The attendant helps the mother with activities not directly linked to the unclean aspects. Only if the mother is too weak will a birth attendant help with these activities.

Women have to cut the cord and clean the baby themselves. If someone else does that for us, we feel we are guilty.
(a Pakoh woman at in-depth interview)

Special Newborn Care A newborn is not considered an official member of the family until the family arranges for a spiritual ceremony after the baby's cord falls off (often two weeks after delivery) or at the end of the first month. If the baby dies before the ceremony, the death is the baby's fate.

She died because she didn't want to live. It was her fate.
(a 19 year old Van Kieu woman regarding her 15 day old baby's death).

These respondents also believe that a newborn is too small to be cured so the family will take no action to cure him. Instead, they sacrifice a chicken or a pig, pray to the *Giang* to remove the evil, and wait for the baby to recover through the *Giang's* blessing.

Postnatal Maternal Care

With her baby lying quietly behind her, the mother lies on her side facing the fire as she massages her belly. She warms her hands or a piece of cloth placed near the fire and massages her belly to reduce the pain. She also warms her face and arms, believing that heat from the fire will help her recover her health from the labor. The attendant has already boiled water with roots and herbs in a big kettle, and this traditional tea simmers on the fire day and night, except when they need the fire to cook rice or other food. The new mother drinks tea continuously, one to two kettles'-worth, or two to three, liters daily. The more she drinks, the healthier she is, and the quicker the bleeding stops. The new mother prefers salty food after delivery, so she will feel thirsty and drink more tea.

The new mother often stays home with her baby for one to two weeks after birth, and then she returns to work in the field as usual. During this time at home, she stays by the fire, continuously warming her body, massaging her belly, and drinking. She bathes herself and her newborn at least daily until her "unclean" vaginal discharge ceases. Food for the new mother is simple. She eats rice with salt, pepper, chili and MSG. Sometimes the mother has fish if her husband can catch one. Meat is rare. Most new mothers do not eat vegetables since they are believed to cause diarrhea in the newborn. They do not introduce vegetables until the baby is one or two months old. There is no postnatal care provided to mothers who deliver at home. On the other hand, if she develops some fever, excessive bleeding, or extreme fatigue, she would go to the CHC for treatment, or her husband or relative would go to the CHC to request a midwife to come to her home.

Routine Newborn Care and Breastfeeding

Bathing The newborn usually sleeps quietly behind the mother who is next to the fire. Since the mother is tired and focused on massaging her belly and warming her body, she only holds the baby when he cries, either to breastfeed him or to clean him after urination or defecation. The mother bathes him once or twice a day with warm water.

Immediate breastfeeding and prelacteal feeding Informants identified the time of the first breastfeeding with difficulty since they were not sure about standard concepts of time (i.e., minutes and hours). We estimate that if the delivery goes smoothly, the mother can complete all her tasks in about one hour. She then has at least one hour to rest. Thus, a mother will probably not initiate breastfeeding before two hours after birth. About half the informants probably did so, while the remainder first breastfeed their newborns sometime after six hours or on the next day. They delay initiating breastfeeding because they are too tired, they do not have milk, or the baby keeps sleeping. A mother does not wake up her newborn to breastfeed. She perceives that if he is hungry, he will cry, and then she will feed him. Crying is an important sign.

These mothers do not offer prelacteal feedings as is common among lowland Kinh mothers. The Kinh believe that the baby's intestine is full of unclean material, so he needs lemon juice, honey, or even morphine to clean his intestine before he is first breastfed (personal communication: PB Ha, Antenatal Care Project Review, Quang Xuong District, Thanh Hoa Province, 1996-1999).
A mother who feels she has insufficient milk will feed her baby food, water, or herb water when she thinks he is thirsty or hungry. Mothers with enough breastmilk will also give him the mother's traditional tea, which they believe protects him from diarrhea.

Colostrum Most mothers squeeze out colostrum before the first breastfeeding because this milk is made before and during delivery when the mother eats all kinds of food, such as vegetables and rice with soup. The milk from these foods may cause diarrhea in the newborn. Mothers avoid vegetables postpartum for the same reason. In addition, milk made long before the baby is born can spoil and also cause diarrhea.

Exclusive breastfeeding Only one of 25 women postponed complementary food until their child's third month. All the others gave their babies either rice, porridge, chewed rice, banana, herb water, plain water, or rice powder cooked with salt, sugar, and MSG. A mother gives complementary food for several reasons. (1) Her baby cries all the time because he is hungry as evident by the observation that he stops crying after he is fed with rice powder or rice. (2) Breast milk is not enough to satisfy the baby because it contains mostly water, and the baby will get hungry after he urinates. (3) Minority women do not have good food to eat like the Kinh people, so the quality of their milk is not good; thus, the baby needs to eat extra food to keep him healthy. Good foods are: milk, sugar, meat, and fish. (4) Some new mothers see that early introduction of complementary feeding in the commune is common, so they follow it. (5) Most important of all, a mother must return to work usually two weeks postpartum, so the baby needs other foods when she is in the field. Not only the mothers but also most community members (especially grandmothers, friends, neighbors, and other relatives) support the practice of providing newborns rice or porridge in the first weeks after delivery. Health staff are unique in advising them to postpone introducing

complementary feeding until after the third month, but some health staff even recommend that the mother begin complementary feeding in the first month.

Danger Signs

Neonatal The most important sign indicating that a newborn is in danger and needs special, immediate care to prevent death is the absence of crying or movement after birth. In such cases, the mother or birth attendant will sharply slap the floor where the baby is laying three to five times to "wake up the baby." Elderly village women teach them about floor slapping. If this fails, the baby must be dead. One woman said that she saw a health provider holding up the baby's legs to slap his buttocks.

Identified danger signs for older newborns are: cessation of sucking, warm to touch, persistent crying, coughing, and diarrhea. If a baby falls sick, they keep him home and pray for several days. If praying does not help, they bring him to the CHC. If the baby dies, that is his fate.

> I believe my daughter died because she did not want to live and she was harmed by evil. My husband first said that my daughter might have a disease, but later my parents said that she was harmed by evil, and he believed that.
> (in-depth interview with a 19 year old Van Kieu woman)

Maternal Some informants say that "pregnancy and delivery are normal, so they do not expect danger." Some do express fear for *de nguoc* (breech presentation) and *de kho* (difficult delivery). People repeatedly describe this as the baby presenting a hand or leg first, which can be fatal to the mother. A baby who cannot leave the mother will stay inside her leading to her death while she is pregnant. Another life-threatening condition is delayed expulsion of the placenta, as discussed above (see Delivery and Immediate Newborn Care). Labor lasting for two days without delivery is too long and indicates that the woman needs help. In these cases the family prays and then calls the midwife or health staff. Pakoh and Van Kieu people have a strong sense of community and will help one another. When a family has a problem, people often gather at the house in the main room to see what they can do. If the mother or the baby needs be referred to a health facility, neighbors will volunteer to carry them in a big sheet to form a hammock.

Infant Care and Feeding

Caregivers The main infant caregivers are the grandmother and siblings after the mother returns to the field, about two weeks postpartum. We met a grandmother who stays home to care for her own three-month old daughter and a four-month old grandson while her daughter-in-law works in the field. During the interview, she breastfed both children at the same time when both cried. Another case involved two children, one six months, the other three months, of two mothers who were both wives of one man living in the same house. The infants were left at home in the care of the maternal grandmother and his nine-year-old brother . When the mother works in the field far from home, other caregivers take full responsibility for feeding and caring for the child from morning till afternoon.

If a mother works at home, she often breastfeeds her baby and leaves him with his grandmother or sibling while she does housework. Initially the grandmother or sibling will hold him, but the former also has work, and the latter is easily distracted playing, so he is often left alone in the corner. If he cries, the caregiver will comfort, change wet clothes, or feed the baby rice powder soup, porridge, or chewed rice. If the baby keeps crying, the mother will come to comfort and breastfeed him.

She often chews rice and uses a spoon to feed her six-month old sister when I go to work in the field" (a Van Kieu mother pointing to a 10 year old girl)

When the baby is big enough to crawl on the floor, his older sibling will carry him in a big scarf, tied to her body (just as her mother would) down stairs to play with her friends. The sibling often carries the baby around the village or puts him on the ground. While busily playing with her friends, she still keeps an eye on him. Meanwhile he plays with dirt and leaves scattered on the ground, watches the older children playing, and gets their attention by crying.

Feeding When a mother goes to the field, she cooks food for the baby and leaves it at home for caregivers to give him when he cries. Foods prepared for the baby include: rice powder soup, porridge cooked with sugar, salt, or MSG, or rice, which the caregivers will chew for the baby. Older children return home to eat lunch or snack whenever they feel hungry since their mother has already prepared food for them. She rises early to cook rice for the family, storing it in a separate *tip* (a small bamboo, cylinder-shaped basket) for each family member for the day. After breakfast, the main meal, the mother puts rice in a small *tip* for her children to eat at home and in the biggest *tip* for herself and her husband. If she has three children, she will provide three *tips* of rice or sticky rice with cassava for her children.

When the child is thirsty, he drinks from a container, which the mother fills with stream water. Adults usually drink water boiled with some kind of herb as a tea, but children usually drink un-boiled water. A mother will breastfeed her child for two to three years until she gets pregnant again.

After age eight months children eat the same food as adults. We stayed in a village and observed a family eating. The menu was rice and cassava with boiled potato leaves, salt, and pepper. The grandmother put some rice in a bowl, mixed in pepper and salt, and gave it to an eight month infant, who used a spoon feeding himself with pleasure.

Food taboos A mother often does not feed her child vegetables because they may cause diarrhea.

We do not feed a child vegetables because there are worms in vegetables, and the child is too young to fight worms, so he may get abdomen pain and diarrhea.
(Group discussion with Van Kieu women in Huong Hoa District)

In addition, children are so small that they may choke on a piece of vegetable in soup or porridge. Indeed, adults do not eat many vegetables either, not even the green leaves that are abundant in the community. Instead they often eat green jackfruit or green papaya cooked with salt and MSG. Caregivers do not feed children snails or small fish as they think the child is too small to chew and to digest these. Meat and fat are rarely fed to children because they are too costly.

Feeding in illness A woman commonly continues breastfeeding her child when he has diarrhea, fever, or coughing, but they do not persevere.

If the child gets fever or diarrhea, we breastfeed him as usual, but if he doesn't want to eat, we don't force him.
(Group discussion with Pakoh women in Huong Hoa District)

Food Availability

***Fruits and Vegetable*s** Both in Huong Hoa and Da Krong Districts, people commonly do not have home gardens for fear of damage by cattle, poultry, or pigs. A few better-off families have home gardens with bamboo fences to prevent damage from livestock. Better-off families also have livestock pens, but most families let them roam around the village.

Fruits and vegetables are not scarce in the village. We observed them growing along the side-walks, in the fields, in the streams, and in some home gardens. Local produce includes pumpkin leaf, potato leaf, pumpkin, squash, *rau don* (wild vegetable), banana, papaya, jackfruit, mango, banana flower, and bamboo shoot. Despite the availability, people do not have the habit of eating them apart from banana flower, green jackfruit, pumpkin, squash and bamboo shoot. People avoid other leafy vegetables because they are "not tasty," they are "not good for health," or they "do not have time to gather vegetables."

Protein-Rich Food People rarely buy protein-rich foods because they are too expensive. They raise poultry or pigs, but these are for sale, for sacrifice, for invited guests, or for weddings or other family ceremonies. When meat is served, children and women participate equally with other members of the family.

Large fish generally need to be bought in the market, but small fish can be found in local streams or in the Da Krong River. We observed children fishing in a stream using a simple net. A group of small children, 5 to 8 years old, gathered in the stream with a big net. After about ten minutes of pulling in the net, they caught three 5 to 10 cm fish. The head of a CHC in Huong Hoa also went fishing in the river for around two hours and caught about 500 grams of small fish for his lunch We also saw a man who went home carrying three large fish.

Snails are another protein-rich food in these communities. Snails can be easily caught between rocks in the streams. One night we enjoyed a tasty soup cooked with rice, small snails in their shells, pumpkin, fat, and salt.

Fat Fat is used for flavor. People often buy fat instead of meat since it is cheaper than meat, and it can be stored safely for along time.

Starch Rice is the primary staple for both children and adults, sometimes supplemented with cassava or corn.

Health Services

In general, a woman does not go to the CHC because it is far from her home, and when labor starts, it is difficult to travel. A woman will come to the CHC for delivery only when the process is not going smoothly. All 34 communes in these two districts have a CHC, each with a midwife in charge of maternity care. Besides providing ANC and assisting at delivery at the CHC, the midwife is also called to help women deliver at home. Both the Pakoh and Van Kieu approve of the midwife and commune health staff conducting unclean tasks (cutting the cord, drying the newborn, bathing the newborn, and touching the unclean products of delivery) because it is their paid job. However, women still prefer to deliver at home because it is more convenient, they get more support from their relatives, they will have fire, they can bathe at the fire after delivery, they can do what they want at home, and there is no fee. In addition, some women feel health staff are not friendly, or they do not trust the competency of commune health staff and midwife. For example, they recalled one midwife estimating that a pregnant woman would deliver in two months, but she delivered in one month, so they questioned the midwife's competence.

I want to deliver at home because I don't have money to pay the CHC.
(In-depth interview with a Pakoh women in Huong Hoa District)

Case History: A Newborn Death

The mother, HTA, is 19 years old, and lives in X hamlet Y commune in Da Krong District. She married a man from the same hamlet not far from her home. After one year of marriage she gave birth to their first baby who died at age 15 days in October 2002.

We visited her home at around 5 PM on 13 March, 2003. The house was a bamboo stilt house with a woven bamboo floor with regular slots so water and waste can be discarded. The house was dark inside with few possessions except some blankets and old clothes hanging on the line around the house. There was a fire in the kitchen area with scattered pans, bowls, plastic cans containing water, and two baskets for women to bring to the field. There was a big bamboo woven shelf hanging above the fire, used for drying rice, cassava, tobacco, and herbs. HTA's father, mother and brother were sitting around the fire; her mother was boiling a kettle of water. Her father seemed unwell, looking pale and tired, leaning against a pile of blankets and repeatedly spitting though floor slots. HTA looked healthy.

She became pregnant in January 2002; she knew she was pregnant as she stopped her regular menstruation. During her pregnancy, she had 2 ANC check-ups, one at the CHC by the commune midwife in her 4th month and another by the district mobile team in her 8th month. At the ANC check-up she had her abdomen checked, and she was told that her baby was normal. She received some medicine from the midwife but she did not know the name of the medicine or its use. She took it because doctor said that it is good for her health. She also received one shot of a vaccine at the second check-up but again, she did not know why she needed the vaccine. She had a normal pregnancy. Her health was rather good, and her family expected a healthy mother and healthy baby.

She started labor in October 2002 (she could not remember the exact date). She intended to deliver at home so her mother and in-laws could help her, but labor lasted for two days without progress so her mother-in-law and relatives decided to bring her to the midwife at the CHC. Around 5 PM she went to the CHC where the midwife said that she had a "difficult delivery" and referred her to Dong

Ha Hospital. She arrived there at 7:30 PM where she delivered an hour later a girl weighing 2.5 kg, according to the midwife.

HTA was sent to the postnatal room after delivery, and she breastfed her baby around one hour after birth following the midwife's advice. She remained in the hospital four days since she had an episiotomy.

After coming back home, HTA and her baby were healthy. She breastfed her baby whenever she cried. Besides breastfeeding her, she gave her plain water several times a day as she thought that she would get thirsty if given breast milk only. The baby sucked and slept well and looked healthy for the first 11 days.

On the 12th day, at 6 am, she breastfed her and let her sleep as usual. She noted that the baby was in a deeper sleep than on other days, but she left her alone since she thought that she just wanted to sleep. Eight hours later, at 2 pm, she was still asleep without any crying or even moving. HTA then held the baby up and realized that her face and hands were blue. She was so frightened that she did not know what to do but cry. She called her mother and relatives for help. Her mother applied some herbal medicine to the baby's body, but it did not help. Her mother often used this treatment for anyone who had health problems ranging from abdominal pain to falling out of a tree to fever.

From that moment, the baby had intermittent episodes of blueness lasting for two minutes, followed by pale whiteness for 5 to 10 minutes. During the blue episodes, the baby was short of breath, her body became cold, and she did not suck. She did not have shaking convulsions, cough, fever, or diarrhea during the blue episodes, and the cord was dry without swelling. The baby started crying, sucking normally when she turned white again. HTA and everyone in the family thought that the baby was harmed by evil, so HTA's father-in-law sacrificed a chicken and prayed for the baby. The father continued such sacrifices for three days without visible effect. During those three days, no one in the family thought of bringing the baby to the CHC or calling a midwife for help. They stayed at home, watched the baby, and waited for her to be relieved from the evil's harm. Late on the third day of illness she became blue for 10 minutes, blood came out her mouth and nose, she stopped breathing, and she died.

When asked if she knows why the baby died, HTA said *khong biet la han co benh gi, chi biet la han khong ung song thi han chet* (I don't know if the baby gets disease. I know that she does not want to live, so she died). HTA confidently said *han be qua bac sy khong tiem duoc dau* (She is too small to get injection). Another reason for them not to bring the baby to the hospital is *khong co tien de di benh vien* (We do not have money to bring her to the hospital). She had spent 500,000 VND (38 USD) for her delivery at the hospital 15 days earlier. Not only HTA but also her mother, in-laws and husband all thought that the bay's death was her fate.

DISCUSSION

Through in-depth interviews, group discussions, and observations we have gained insight into Pakoh and Van Kieu community practices, perceptions and beliefs concerning care for women around childbirth, newborns, and infants. Some recommendations obtained from these insights may

be helpful for project stakeholders to develop appropriate, culturally acceptable interventions to improve health status of women and children in these communities.

Beneficial and Harmful Practices

Within each theme, we found examples of beneficial and harmful practices (Table 2).

Antenatal Care Beneficial practices include: use of ANC check-ups, birth planning, and maintaining a regular diet without eating down or food taboos. On the other hand, each of these benefits is incomplete. That is, use of check-ups is far from universal, and those that do obtain them neither fully understand the various services nor are they empowered to find out what they really want to know. In addition, the described birth planning assumes a normal delivery with no contingency for complications or danger signs. Finally, the absence of food taboos is a modest benefit since the normal diet is monotonously incomplete. Harmful antenatal care practices, then, include the women's grueling manual labor requirements and the low use of check-ups, including incomplete use of on-going or repetitive services, such as iron/folate supplementation and multiple tetanus vaccinations.

Labor, Delivery and Newborn Care Some mothers do use skilled birth attendants, if they are accessible, either at the CHC or in their homes. Home delivery is in an erect squatting position, which probably hastens delivery due to gravity. Although some mothers deliver alone, many have neighborhood helpers for moral support and assistance in practical tasks. Thus, the notion of help, even skilled help, is accepted. On the other hand, few mothers use skilled help. Moreover, most deliveries including cord cutting and tying are unclean, most mothers are distracted with "unclean" delivery tasks, and most newborns fail to receive optimal immediate newborn care for fear of an undelivered placenta harming the mother.

Postnatal Maternal Care Some traditional practices are commendable in that they allow the mother a week or two to recuperate and bond with her infant. On the other hand, the deeply entrenched expectation of her prompt return to fieldwork is a major harmful practice. Of course, postnatal care check-ups are not used, nor are they offered by the health services.

Routine Newborn Care and Danger Sign Recognition Routine newborn care has the benefits of universal breastfeeding, often given almost immediately, without prelacteal feeding. Mothers bathe the newborn in warm water, although probably sooner and more often than optimal. Similarly, mothers commonly discard the first colostrum, of probably limited significance. Of more concern are the unhygienic cord dressing practices, the habit of not breastfeeding a non-crying infant, and the early supplementation of breastfeeding. Mothers do know some newborn and pregnancy-related danger signs; however, the list is incomplete, and their responses are unlikely to save lives.

Infant Care and Feeding We found several current beneficial infant feeding practices, including: universal breastfeeding, continued breastfeeding during illness, breastfeeding for at least two years, and mothers preparing children's daily meals prior to leaving for the field. We even observed an example of wet-nursing, a key strategy to promote breastfeeding during prolonged separation of mother and infant. However, the harmful child feeding practices of low rates of exclusive breastfeeding and monotonous high starch diet not taking advantage of available local sources of vitamins (vegetables) and protein (snails) were common. In addition, young siblings were commonly

the primary daytime caregiver. Children consumed contaminated water, and caregivers rarely practiced good hygiene, especially, hand washing after handling feces or before preparing food.

Overall, programmers are pleased to identify practices that are beneficial even if incompletely beneficial or only practiced by some. Communities are easier to mobilize when programmers affirm or even adapt some of their on-going practices, rather than reject them wholesale to start over with imported solutions. Clearly, despite the socio-economic impoverishment and geographic isolation, this credible foundation of beneficial practices will ease adopting even better practices.

Behavioral Determinants

To inform behavior change interventions we also described the determinants of harmful practices within each theme (Table 3). We characterized determinants as internal (knowledge, beliefs, confidence, etc.) or external (norms, time, service availability and quality, etc.) because programmers can address the former at the individual beneficiary level while the latter require either group level change (i.e., norm) or environmental change (i.e., availability of time or health service). The classification does not deny the benefit of multi-target behavior change strategies regardless of the specific determinant in question. Moreover, some determinants, i.e., beliefs, could be individual convictions or social norms or both.

We identified more than one determinant for more than half of the harmful practices. In fact, all probably have multiple determinants. A few examples will illustrate the programmatic response to ameliorating specific practices.

Women's Manual Labor During Pregnancy Women maintain extremely demanding manual labor regimens even during pregnancy due to the social norms of gender roles. Many women deeply value this female "toughness" and independence, which results, among other things, in women not requiring or even refusing assistance from their husbands during childbirth. On the other hand, some men *did help their wives* carrying firewood or catching fish for their meals. SC's "positive deviance" approach (references) is well suited to this challenge. It rests on the observation that in most communities, programmers can find examples of some individuals or families who have success in health, either through achieving good health or choosing model practices. The less common the exception, the more important it is. Thus, when SC programmers identify one or two husbands who positively deviate from the social gender norm and rule out other determinants that are not transferable (i.e., urban upbringing), interventions, such as testimonies at men's gatherings, can spread the model practice to others.

Low Use of ANC Check-Ups Several external and internal factors determine the current low use of ANC check-ups. Programmers can address the uneven service availability and perceived quality through scheduling outreach clinics at times when women can attend. Review of actual provider quality, and, if appropriate, testimonials by "satisfied customers" can boost their reputation. Hiring providers fluent in the local languages and training them in communication skills will similarly improve quality. Training mothers, including role-playing the actual encounter, in the rationale and components of ANC check-ups will help them better benefit from the experience. SC's "Community-Defined Quality" approach, which brings together communities and providers to describe and respond to perceived quality gaps, could mobilize both communities and health service personnel to demand and provide good care.

Unclean Delivery Again, external and internal factors account for the high levels of this life-threatening practice. Addressing the internal determinant of low knowledge about the "germ theory of disease" may not be the most efficient behavior change strategy. Instead, programmers might omit this step and focus on making home delivery kits available and training communities in their use. Other programming experience (HBLSS reference) has demonstrated that the kits are convenient and used, when available. Results from the household survey (reference…XXX) showed that almost all mothers (90% of minority women and 97% of Kinh women), who received a CDK, used it; however, the components of the kit were not totally or effectively used in every case.

Mother Performs "Unclean" Delivery Tasks This harmful practice probably rests on the social norm that delivery is "unclean" and the belief that this can cause ill health among those who come in contact with the process. Whether internal or external, these firmly entrenched determinants require an innovative behavior change strategy. SC's "positive deviance" approach is well suited to this challenge. Thus, when SC programmers identify one or two mothers who positively deviate from this norm and rule out determinants that are not transferable (i.e., medical training), spreading the model practice of care seeking for delivery will occur. Depending on the example, the vetted fact that exceptions to social norms do, in fact, occur can motivate behavior change. Perhaps even more powerful, individual positive "doers," either identified at baseline or as new adopters during the project, can share their stories, as advocates for behavior change.

An alternative or additional explanation is possible. That is, the low use of trained delivery care may stem from the mother's uneasy feeling of "not doing her job" since, in fact, health staff (even minority health staff) do conduct deliveries without social sanction. In other words, the challenge may be more to modify the norm of a "good woman" as totally self-sufficient, especially in childbirth. Women do want help and the observed fear of illness from contact with unclean processes and fluids may be exaggerated and amenable to education. Indeed, health staff rarely fall from helping women at birth. Pictorial, simple messages about infection prevention explained by birth attendants who helped a mother cut the cord and care for her newborn (and did not fall sick) could prove motivating in a community meeting. Messages that women need special care during pregnancy and childbirth since they have special needs must target men and women not only because of an "information gap" but also because of a "rights gap." Women should not feel guilty because "they are not doing their job" if they expect help during a time of need.

Newborn Ignored Until Placenta Delivered Two internal determinants explain this dangerous practice, a belief in the danger of an undelivered placenta and a lack of knowledge about immediate newborn care. The SC team learned of the belief that a placenta *in utero* can "go up" to the mother's heart and kill her in earlier formative research (Ha and Marsh, Trip Report, January 2003). At that time, discussions with both village women and their local trainers revealed a flawed understanding of the anatomy of the uterus and fetus. We used the newborn doll with an attached placenta and cord and a ski hat to demonstrate how the fetus is enclosed in a muscular bag, the complete opening of which connects to the birth canal. Two groups of about 10 mothers each enthusiastically received this new information, remarking that this new knowledge would enable them to change their postpartum practice freeing time to provide more attention to their newborns. Disabusing village women of this belief, plus training them, using role-playing of warming, drying, and immediate breastfeeding, may greatly improve immediate newborn care.

Low Practice of Exclusive Breastfeeding A host of internal knowledge and belief determinants and a single major external determinant (early return to fieldwork postpartum) hinder exclusive breastfeeding. Earlier experience in Da Krong demonstrates that mothers enthusiastically welcome "modern knowledge"; however, SC will unlikely change the communities' dependency on maternal work within brief project cycle. On the other hand, strategies do exist today to maintain exclusive, or near exclusive, breastfeeding despite maternal work (Dearden et al.). We observed wet-nursing, and earlier work (Ha and Marsh, Trip Report, January 2003) revealed that examples of the full gamut of strategies: (1) wet-nursing, (2) expressing and storing breastmilk, (3) delaying maternal return to the field, bringing the baby to the field (either by the mother for the day or by a sibling for the feeding), or (4) mother returning from the field to breastfeed. Indeed, those Da Krong mothers assented that they had heard of the strategies, but they were uncommon. Education about the benefits of exclusive breastfeeding, and especially the positive deviance approach to spread these uncommon strategies will improve breastfeeding practices.

Sim

Single Van Kieu adolescent girls and boys, that is, potential young mothers and fathers, often use a *sim* house as a place to talk in the evening about many subjects of everyday life. Unfortunately, they do not talk about reproductive health even though the topic is not taboo.. Neither girls nor boys have any idea about how the reproductive system works because no one has told them, they have no books, and even if they did, many cannot read. The lack of information on reproductive health leads them to follow whatever their mothers or in-laws tell them when they get married or when they become mothers. They then continue the "cycle of ignorance," which their mothers and grandmothers have experienced, the most deadly aspect of which is to accept the death of a woman or a newborn as ordained by fate. The project should take advantage of *sim* and use it as a place for discussion and negotiation about reproductive health for adolescents. Pakoh communities do not have *sim*, but they would still benefit from reproductive health training meetings for adolescent girls and boys.

Elicitation Questions

We planned to use the eight elicitation questions to characterize the behavioral determinants for one or at most two behaviors following each in-depth interview. In fact, this test was less successful than hoped, and we present our lessons learned:

1. The in-depth interview took more than two hours including greetings, explanations, and putting people at ease. Thus, informants were tired by the time we commenced the eight elicitation questions. If the interview takes too long, informants become tired and reluctant to answer, so we must separate the in-depth interview from the elicitation questions.
2. Similarly, the elicitation questions sound repetitive and possibly confusing, especially when we explored more than one behavior sequentially. If we decide to rely on this method, we should limit it to a maximum of two behaviors to avoid confusion and fatigue.
3. These questions worked better with people who had more education and were accustomed to thinking abstractly and to analyzing. Minority people were less verbal. In reply to the questions, they often said nothing or said that they did not know (Table 4) If they offered an opinion, they often referred to someone else's response (during the initial attempt in the

group discussion setting. We propose modifications to the questions, attempting to ease understanding without leading the respondent (Table 5).

4. The in-depth interview process, on the other hand, did provide insight into the "whys" of key practices, i.e., beliefs, norm, supports, barriers etc. We may decide that a less structured approach works better for such semi-literate populations.

Strengths and Weaknesses of this Study

The study had several strengths. The sample size was sufficiently large to discover both the range of behavior (which actually was not great) and to confirm the validity of reported behavior. We succeeded in gaining the confidence of the Pakoh and Van Kieu people because members of the team were familiar with local customs, had conducted previous local formative research, spoke the local language(s), or were trusted by community leaders. Thus, local people willingly described their behaviors and provided insight into their culture, norms, beliefs, facilitators and barriers, and attitudes regarding health services and maternal, newborn, and child nutrition care in their communities. In addition, we suspect that local people felt comfortable enough around the data-gathering team to behave "normally," allowing us to observe many household practices which further amplified reported responses. Finally, we succeeded in characterizing the communities' "mobilizability," i.e., their enthusiastic interest in participating in the project. Related to this, we also identified a key strategy to fill the information gap: providing adolescents with reproductive health information through their *sims*.

No study is perfect, and ours is no exception. Our sample was limited to mothers. Group discussions and in-depth interviews with husbands and in-laws would have strengthened the conclusions. Indeed, we plan to do this during later project implementation. The elicitation question limitation was discussed above. Nonetheless, the research provided an opportunity to ponder the indications and contraindications and possible modifications of these eight important questions.

Conclusion

The Pakoh and Van Kieu people are friendly, warm-hearted, community-minded people. They seem easily motivated and eager to learn. Unfortunately, due to living in inaccessible hilly terrain, without electricity, with minimal education, with language barriers, and in general poverty, they suffer from a wholesale lack of basic information about caring for women around child birth and caring for newborns and small children. Not surprisingly, they believe that fate is responsible for the death of women and children who actually experience preventable or treatable diseases or pregnancy-related complications. Given their curiosity and the value they place on new or "modern" information, we are optimistic that these communities can learn quickly. Moreover, if they are provided opportunities to practice new behaviors, they will soon develop the skills to care for themselves and for their children at home.

SC will do well to expand its experience with the "Home-based Life Saving Skills" approach for safe motherhood in three Da Krong communes (Evaluation of Safe Motherhood Project in Da Krong District, April, 2003) to the larger current project. Key messages will need to address include: maternal rest before and after delivery, use trained and especially skilled birth attendants, practice clean delivery, dry and warm baby promptly after birth, recognize maternal and neonatal danger

signs and respond immediately, initiate immediate breastfeeding, exclusively breastfeed, and introduce appropriate complementary foods after age six months.

Table 1: Sample Characteristics by District, Data Collection Method, and Ethnic Group

	Da Krong District		Huong Hoa District		Total
	Key Informant	Group Discussion	Key Informant	Group Discussion	
Pakoh	2	0	9	8	19
Van Kieu	7	24	8	8	47
Total	9	24	17	16	66

Table 2: Current Maternal and Newborn Health Practices and Their Likely Effect on Achieving Good Health Outcomes

Beneficial	*Harmful*	**Neutral or Unknown**
Gender Roles		
▪ Husbands may help wives with some heavy work postpartum ▪ Van Kieu practice of sim has the potential to access youth efficiently on the verge of adulthood	▪ Women work from dawn to dusk, often in heavy manual labor. ▪ Women, who can least afford to expend extra energy, are the most likely to help another woman in need	
Antenatal Care		
▪ Some women obtain ANC, including iron/folate and tetanus vaccination. ▪ No food taboos or "eating down." ▪ Prepares for confinement by storing up firewood, food, baby clothes, and perhaps money.	▪ Women maintain routine work, including heavy manual labor (fetching firewood and water) until onset of labor ▪ Women do not change or supplement their normal, monotonous diet. ▪ Many women either do not access ANC, or, if they do, they neither fully understand the services nor have the skills to ask questions. ▪ No preparation for complications of delivery.	▪ Pray to *Giang* if women have problem
Labor, Delivery and Immediate Newborn Care		
▪ Deliver in squatting position. ▪ Use non-trained neighborhood birth attendant to help if the mother is exhausted or if a complication occurs. ▪ May use clean home delivery kit ▪ May use skilled birth attendants if live near Commune Health Center	▪ Deliver without skilled, or even trained, attendant. ▪ Unclean delivery: unwashed hands, unclean surface, bamboo blade to cut cord, jute fiber or unclean thread to tie cord. ▪ Mother does many birth tasks herself: cutting cord, cord care, bathing the baby, burying the placenta. ▪ Birth attendant vigorously massages mother's abdomen to expel placenta. ▪ Newborn ignored (neither dried, wrapped, nor breastfed) until the placenta delivered. ▪ Traditional healer performs a ceremony (*thoi*) if the baby or placenta does not deliver promptly.	▪ Pray to *Giang* if women have problem
Postnatal Maternal Care		
▪ Mother and baby rest together for up to two weeks, keeping warm at the fire. ▪ Mother focuses on abdominal massage, drinking herbal tea, and bathing.	▪ Limited diet (mainly salty rice and chilies without vegetable, meat, or fish) ▪ Mothers bathe in the stream. ▪ Mothers resume fieldwork in the second week after delivery. ▪ No use of formal postnatal care.	▪ Bathe many times a day

Routine Newborn Care and Breastfeeding		
▪ Newborn remains with mother. ▪ All newborns are breastfed, many early in the first day. ▪ No prelacteal feeding. ▪ Bathe the newborn with warm water. ▪ Breastfeed on demand.	▪ Immediate breastfeeding is uncommon. ▪ Initial colostrum discarded. ▪ Apply charcoal or other topical treatments to cord stump. ▪ Bathe the newborn soon after delivery. ▪ Do not breastfeed the newborn if he does not cry. ▪ Exclusive breastfeeding rare, even among newborns.	
Danger Signs		
▪ Aware that a non-breathing, non-moving newborn needs urgent response. ▪ Know some pregnancy-related danger signs and some newborn danger signs.	▪ Inadequate response to non-breathing baby. ▪ Non-existent care-seeking for many ill newborns. ▪ Delayed care-seeking for pregnancy-related danger signs, i.e., prolonged labor. ▪ Home prayers and ritual sacrifices delay definitive care-seeking.	
Infant Care and Feeding		
▪ Mother prepares food for the day for the children left at home. ▪ Mothers continue breastfeeding when the child is ill. ▪ Wet-nursing is practiced. ▪ Breastfeeding continued for two to three years.	▪ Exclusive breastfeeding rare. ▪ Children fed mainly starch without vegetables, meat, or fat. ▪ Small children left in young sibling's care. ▪ Children drink un-boiled stream water. ▪ Caregivers and children do not wash hands before eating (observation). ▪ Mothers do not wash hands between cleaning baby after defecation and breastfeeding (observation).	
Sources of Health Information		
▪ Midwife, mothers, in-law, friends.	▪ Follow others' practices without knowing why.	

Table 3. Harmful Practices and Identified Determinants.

Harmful Practice	Determinant (Internal vs. External)
Antenatal Care.	
Women maintain routine work, including heavy manual labor (fetching firewood and water) until onset of labor	▪ Norms of the role of a "good woman." (internal)
Women do not change or supplement their normal, monotonous diet.	▪ No knowledge of women's special needs during pregnancy and child birth.(internal) ▪ No knowledge of value of varied diet, especially one that takes advantage of locally available food. (internal)
Many women either do not access check-ups, or, if they do, they neither fully understand the services nor have the skills to ask questions.	▪ CHC-based services are remote. (external) ▪ Insufficient time to access CHC-based services. (external) ▪ Belief by some that commune midwife is not competent. (external) ▪ Low self-confidence by some to take full advantage of the check-ups.. (internal) ▪ Inability of some providers to speak minority languages or provide good counseling. (external)
No preparation for complications of delivery.	▪ Belief that pregnancy and childbirth are normal events incompatible with complications. (internal)
Labor & Delivery Care.	
Deliver without skilled, or even trained, attendant.	▪ Inaccessible trained or skilled attendants. (external)
Unclean delivery: unwashed hands, unclean surface, bamboo blade to cut cord, jute fiber or unclean thread to tie cord.	▪ No knowledge that "unclean delivery" may cause infection in newborn or mother. (internal) ▪ Lack of clean home delivery kit. (external) ▪ Low knowledge of how to use clean home delivery kit, even if has one (internal)
Mother does many birth tasks herself: cutting cord, cord care, bathing the baby, burying the placenta.	▪ Norm that delivery is "unclean." (internal) ▪ Belief that "uncleanness" can cause sickness in those who help. (internal)
Birth attendant vigorously massages mother's abdomen to expel placenta.	▪ Belief that placenta remaining in mother's body will kill the mother. (internal)
Newborn ignored (neither dried, wrapped, nor breastfed) until the placenta delivered.	▪ Belief that placenta remaining in mother's body will kill her. (internal) ▪ No knowledge about newborn care, i.e., health promotion and illness prevention. (internal)
Traditional healer performs a ceremony (*thoi*) if the baby or placenta does not deliver promptly.	▪ Low knowledge of obstetric complication. (internal) ▪ Belief in healer's power. (internal) ▪ Inaccessible basic essential obstetrical care. (external)

Postpartum Maternal Care.	
Limited diet (mainly salty rice and chilies without vegetable, meat, or fish)	▪ Belief that eating only rice and pepper will make breast milk safe, so the newborn will not get diarrhea. (internal) ▪ Low knowledge by family of special needs for mothers and newborn. (internal)
Mothers bathe in the stream.	▪ Belief of delivery-related "uncleanness" makes women fastidious about bathing herself. (internal).
Mothers resume fieldwork in the second week after delivery.	▪ Norm that pregnancy and delivery are "normal" events in women's life, so prompt resumption of fieldwork is expected. (internal)
No use of formal postnatal care.	▪ Unavailable formal postnatal care. (external)
Newborn care.	
Immediate breastfeeding is uncommon.	▪ Belief that placenta remaining in mother's body will kill her. (internal) ▪ Lack of knowledge about newborn care, i.e., health promotion and illness prevention. (internal)
Initial colostrum discarded.	▪ Belief that colostrum will cause diarrhea in the newborn because it is "old" (and spoiled) or is affected by mother's prior diet (i.e., maternal vegetables cause diarrhea in breastfeeding infant). (internal)
Apply charcoal or other topical treatments to cord stump	▪ No knowledge that unclean material applied to cord stump may cause cord infection (internal) ▪ Norm of following others' practice without understanding why. (internal)
Bathe the newborn soon after delivery.	▪ Belief of delivery-related "uncleanness" makes women fastidious about bathing baby. (internal). ▪ No knowledge that bathing may cause hypothermia. (internal)
Do not breastfeed the newborn if he does not cry.	▪ Insufficient time because mother has many tasks. (external) ▪ Mother's postpartum exhaustion limits her perseverance in breastfeeding a quiet baby. (external) ▪ No knowledge that quiet newborns may be hungry. (internal) ▪ Belief that the baby was well fed *in utero*, so he cannot be hungry after birth. (internal)
Exclusive breastfeeding rare, even among newborns.	▪
Danger Signs	
Inadequate response to non-breathing baby.	▪ No knowledge that a still, non-breathing newborn may still be alive, despite slapping the floor. (internal) ▪ No knowledge about newborn resuscitation. (internal)
Non-existent care-seeking for many ill newborns.	▪ Belief that newborns are not full persons. (internal) ▪ Belief that newborns succumb only to spiritual afflictions, rather than medical ones. (internal) ▪ Belief that newborns are too small for some treatments, like injections. (internal)
Delayed care-seeking for pregnancy-related danger signs, i.e., prolonged labor.	▪ Low knowledge about obstetric complication. (internal) ▪ Belief in healer's power. (internal) ▪ Inaccessible basic essential obstetrical care. (external)
Home prayers and ritual sacrifices delay definitive care-seeking.	▪ Belief in healer's power. (internal)
Infant Care and Feeding	

Exclusive breastfeeding rare.	▪ Belief that mothers who do not eat meat or sugar will have deficient milk. (internal) ▪ Belief that because breastmilk is mostly water, babies lose the benefit of the milk when they urinate. (internal) ▪ Belief that baby's crying always represents hunger, especially since it is often relieved by introducing complementary feeding. (internal) ▪ No knowledge that exclusive breastfeeding is optimal for first six months. (internal) ▪ Norm that mothers return to fieldwork within weeks of delivery. (external) ▪ No knowledge about strategies to maintain exclusive breastfeeding after resuming fieldwork. (internal)
Children fed mainly starch without vegetables, meat, or fat.	▪ Norm of avoiding many vegetables, which are not "good food." (internal) ▪ Insufficient time to catch fish or snails. (external) ▪ Belief that infants cannot digest snails. (internal) ▪ Reluctance to consume livestock, which is raised for sale. (external)
Small children left in young sibling's care.	▪ No other childcare options available. (external)
Children drink un-boiled stream water.	▪ Lack of knowledge that consuming untreated water can cause diarrhea for children as well as for adults. (internal)
Caregivers and children do not wash hands before eating (observation).	▪ No knowledge of the fecal-oral spread of disease. (internal)
Mothers do not wash hands between cleaning baby after defecation and breastfeeding (observation).	▪ No knowledge of the fecal-oral spread of disease. (internal)

Table 4: Behavioral Determinants from Elicitation Questions

A) Exclusive Breastfeeding

Determinants	Responses (grouped into closely related phenomena)	Doers # (%)	Non-Doers # (%)	Total # (%)
Good things if you do EBF:	Stop crying	0	2/6	2/6
	Reduce hungry of the baby	0	1/6	1/6
	Help baby grow fast and healthy	0	4/6	4/6
	Mother have more time to work (because the baby feels full so do not cry)	0	2/6	2/6
	Don't know	0	2/6	2/6
Bad things if you do EBF:	Nothing	0	2/6	2/6
	Don't know	0	3/6	3/6
	Baby will not grow and become malnutrition	0	2/6	2/6
	Baby may get cough and sick	0	1/6	1/6
Who support you to do EBF:	Friends/neighbor	0	2/6	2/6
	No one/ Self-support	0	4/6	4/6
Who not support you to do EBF:	Old people	0	1/6	1/6
	Health staff	0	1/6	1/6
	Book/ news paper	0	1/6	1/6
	No one	0	4/6	4/6
Things make it easier	Mother can go to work	0	1/6	1/6
	Baby cry/want to eat	0	1/6	1/6
	Nothing	0	3/6	3/6
	Don't know	0	1/6	1/6
Things make it more difficult	Take more time	0	1/6	1/6
	Mother has more work	0	1/6	1/6
	Nothing	0	3/6	3/6
	Don't know	0	1/6	1/6
People likely to do EBF:	Many people in the hamlet /all people	0	2/6	2/6
	Don't know	0	3/6	3/6
	People in the same age	0	1/6	1/6
People likely not to do EBF:	Don't know	0	4/6	4/6
	No one	0	2/6	2/6

B) Antenatal Care Check-Ups

Questions	Responses (grouped into closely related phenomena)	Doers # (%)	Non-Doers # (%)	Total # (%)
Good things if you do ANC	Know if the baby is healthy	3/7	0/2	3/9
	Know the baby is girl or boy	1/7	0/2	1/9
	Know the due date	3/7	0/2	3/9
	Know if have a difficult delivery	1/7	0/2	1/9
	Know mother's health status	2/7	0/2	2/9
	Nothing good	1/7	0/2	1/9
	Don't know	0/7	2/2	2/9
Bad things if you do ANC	Nothing	6/7	0/2	6/9
	Don't know	1/7	2/2	3/9
Who support you to do ANC	Health staff	4/7	2/2	6/9
	Husband and in-law	8/7	3/2	11/9
	Friend/neighbor/ hamlet leader/teacher	2/7	2/2	4/9
Who not support you to do ANC	No one	7/7	2/2	9/9
Things make it easier	Health staff is a woman	0/7	1/2	1/9
	Have ANC at hamlet/home close to CHC	2/7	1/2	1/9
	Someone remind to use ANC	1/7	0/2	1/9
	Know the service	1/7	0/2	1/9
	Don't know	2/7	1/2	2/9
Things make it more difficult	CHC is far from house	4/7	2/2	6/9
	No one remind	0/7	1/2	1/9
	Man do ANC	0/7	1/2	
	Fear of being sick because tired of walking far	1/7	0/2	1/9
	Feel ashamed because of pregnant	1/7	0/2	1/9
	Nothing	1/7	0/2	1/9
People likely to do ANC	All pregnant women	3/7	1/2	4/9
	People in the same age	1/7	0/2	1/9
	Don't know	3/7	1/2	4/7
People likely not to do ANC	All pregnant women	1/7	0/2	1/9
	No one	4/7	1/2	5/9
	Don't know	2/7	1/2	3/9

Table 5. Proposed Modifications to the Elicitation Questions for Use with Minority Populations

Original questions	Translated into Vietnamese with elaboration	Translated back to English with elaboration
1. What are good things which may happen if you give baby only breast milk?	1. Theo chÞ, chÞ thÊy nh÷ng ®iÒu g× tèt cho con chÞ vµ cho chÞ nÕu chÞ chØ cho con chi bó mÑ, kh«ng ¨n thªm bÊt cø thøc ¨n nµo kh¸c trong vßng 4 th¸ng ®Çu.	1. What are benefits, from your perspective, for your child and for you if you breastfeed your child without introducing any kind of other food within the first four months of birth?
2. what are bad things which may happen if you give baby only breast milk?	2. Theo chÞ, chÞ thÊy nh÷ng ®iÒu g× kh«ng tèt cho con chÞ vµ cho chÞ nÕu chÞ chØ cho con chi bó mÑ, kh«ng ¨n thªm bÊt cø thøc ¨n nµo kh¸c trong vßng 4 th¸ng ®Çu.	2. What are not good thing, from your perspective, for your child and for you if you breastfeed your child without introducing any kind of other food within the first four months of birth?
3. Who support you to feed your baby with only BM?	3. Nh÷ng ai trong gia ®×nh, trong th«n, trong x· th-ên khuyªn chÞ chØ cho con chÞ bó mÑ kh«ng ¨n thªm bÊt cø thøc ¨n g× kh¸c trong vßng 4 th¸ng ®Çu.	3. Who in your family, in your hamlet, in your commune usually encourage you to breastfeed your child without introducing any kind of food within the first four months of birth?
4. Who do not support you to feed your baby with only BM?	4. Nh÷ng ai trong gia ®×nh, trong th«n, trong x· th-ên khuyªn chÞ kh«ng nªn cho con chØ bó mÑ, mµ nªn cho ¨n thªm nh÷ng thøc ¨n kh¸c trong vßng 4 th¸ng ®Çu.	4. Who in your family, in your hamlet, in your commune usually encourage you not only breastfeed your child but give your child other foods within the first four months of birth?
5. What makes it easy for you to feed your baby with only BM?	5. Nh÷ng ®iÒu kiªn g× (søc kháe, thêi gian, hç trî cña gia ®×nh, b¹n bÌ, lµng xãm) gióp chÞ cã thÓ cho con chÞ bó mÑ trong vßng 4 th¸ng ®Çu mµ kh«ng cho con chÞ ¨n thªm bÊt cø mét thø thøc ¨n nµo kh¸c	5. What are favor conditions (your health, time, support from your family, friends, community) which enable you to breastfeed your child without introducing any kind of food within the first four months of birth?
6. What make it difficult for you to feed your baby with only BM?	6. Nh÷ng khã kh¨n g× (søc kháe, thêi gian, hç trî cña gia ®×nh, b¹n bÌ, lµng xãm) ®· lµm cho chÞ kh«ng thÓ cho con chÞ chØ bó mÑ mµ kh«ng ¨n thªm bÊt cø mét thø thøc ¨n nµo kh¸c trong vßng 4 th¸ng ®Çu	6. What are challenges (your health, time, support from your family, friends, community) which make you unable to breastfeed your child without introducing any kind of food within the first four months of birth?

7. What kinds of people in the village, who are likely to feed baby with only BM for four month?	7. Nh÷ng ai trong gia ®×nh chÞ, trong th«n, trong x· lµ ng-êi mµ chÞ nghÜ lµ cã thÓ thùc hiÖn cho con bó mÑ hoµn toµn, kh«ng ¨n thªm bÊt cø mét thø thøc ¨n nµo kh¸c trong vßng 4 th¸ng ®Çu	7. What kinds of people in your family, village, commune the village, who are likely able to feed baby with only BM for four month? (How might they be different from those who give their baby other foods than just BM within the forth month of age?)
8. What kinds of people in the village, who are likely not to feed baby with only BM for four months?	8. Nh÷ng ai trong gia ®×nh chÞ, trong th«n, trong x· lµ ng-êi mµ chÞ nghÜ lµ Kh«ng thÓ thùc hiÖn cho con bó mÑ hoµn toµn, mµ ph¶I cho con ¨n thªm thøc ¨n nµo kh¸c trong trong vßng 4 th¸ng ®Çu	8. What kinds of people in your family, village, commune, who are not likely able to feed baby with only BM, but likely introduce other foods for the child within the first four months of birth. (How might they be different from those who give their baby only BM within the forth month of age?)

SAVE THE CHILDREN WORKING PAPER NO. 2

COMMUNITY CAPACITY IN QUANG TRI PROVINCE, VIETNAM – A MEASUREMENT PILOT-TEST DURING THE FINAL EVALUATION OF A FIVE-YEAR CHILD SURVIVAL PROJECT

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DRAFT 3
SEPTEMBER 8, 2007
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ACRONYMS

ANC	Antenatal Care
CC	Community Capacity
CG	Community Guide
CHC	Commune Health Center
CSC	Commune Steering Committee
EPI	Expanded Programme for Immunizations
MOH	Ministry of Health
NERP	Nutrition Education Rehabilitation Program
SC	Save the Children

SUMMARY

Background Save the Children builds community capacity (CC) in health programs in 40 countries, but we struggle to concisely measure it. We recently catalogued the domains and sub-domains of CC and commenced building a question bank to assess them. The final evaluation of a child survival project in Quang Tri Province, Vietnam (July 2007) provided an opportunity to test some indicators.

Methods We selected four CC domains (with seven sub-domains) that the Project was likely to have increased: (1) collective efficacy (confidence to solve future health problems); (2) information equity (enhanced free flow of information); (3) sense of ownership (importance of issue, sense of responsibility for activities, sense of ownership of credit for success, and contribution); and (4) social cohesion (new trusted sources of information). From the question bank, we adapted one open-ended question with probes for each sub-domain and included them among the question guides that were intended to inform the donor's information needs for the final evaluation. Bilingual Vietnamese team members discussed each concept in detail before translating it into Vietnamese. Two teams conducted group interviews at five Project levels: province (officials and trainers), district (Steering Committee and trainers), commune (Steering Committee), Community Guides, and villagers (always mothers of children <2 years, and sometimes fathers, grandmothers, etc.). We selected seven Van Kieu minority communes (3 in Dakrong and 4 in Huong Hoa District) to represent differing dates of implementation start-up, accessibility, and "success" in terms of management. All interviews were conducted in Vietnamese except in villages where we relied on bi-lingual Guides to translate Vietnamese into Van Kieu. After each group interview, three or more note-takers compared notes, reached consensus and consolidated them into a single English summary, which we transferred to Excel to fashion a line-listing of findings by indicator, level, success, etc. Upon reviewing all findings for each indicator, we defined categories (low, medium, high) and developed criteria to attribute change to the Project. We aggregated sub-domains and/or domains by assigning scores of 1, 2 or 3 to the categories.

Results We obtained 80 responses of a possible 140 (57%) questions related to CC. We found good CC at all five levels, much of which (61% [44/72 units]) was attributed to the Project. For example, all 19 responding units reported medium to high self-efficacy, with three quarters (14/19) attributing this to the Project. Overall sense of ownership, the sum of four sub-domains, was high at Community Guide and village levels with possible scores ranging from 67% to 100%. Assessments of information equity ranged widely: 1 low, 4 medium, and 3 high, with most change (7/8) attributed to the Project. Most of the seven responses regarding "trust" were medium (3) or high (3), but none were attributed to the Project.

The "weak" hamlet provided no useful data, surely an indicator of weak CC, but the "weak" Commune Steering Committee did not score lower on aggregate CC than the mean of its six counterparts. There was some clustering of domains within Community Guides and Commune Steering Committees and within the commune cascade from Commune Steering Committee to Community Guide to village, but the limited number of measurements and their imprecision precluded drawing conclusions.

Discussion This pilot-test did not intend to comprehensively characterize CC in the Project impact area. Our aim was to learn. On the other hand, reported changes in CC domains were consistent with Project strategies. Moreover, capacity was not measurable in one of the two weaker units. We suspect that the sub-domain, "trusted source of new information," serves the domain of information equity better than social cohesion. We made numerous methodological observations and recommendations for the future, including formative research, pre-categorizing levels of indicators using community-derived descriptions, pre-testing, and limiting inquiry to one or two levels of community (not five).

BACKGROUND

Save the Children (SC) recognizes the need to better measure community capacity (CC) because: (1) SC invests heavily to achieve CC in nearly all community-based programming; (2) SC is a recognized leader in the allied process of community mobilization[i]; (3) improving CC is a legitimate strategy to increase and sustain the use of life-improving interventions[ii]; (4) evidence for this effect generally relies on case studies which are hard to measure and generalize; and (5) organizations that facilitate CC often fail to receive due recognition because there is no concise and accepted way to describe CC, let alone quantify it.

Given the need and the opportunity, SC and the Health Communications Partnership facilitated a Partners' Learning Forum in Lusaka, Zambia[iii] in August 2006 to advance thinking and share experience in CC and its measurement. Recognizing the value to the agency, SC also allocated private resources to develop and field-test indicators.

To date we have reviewed the literature,[iv] prioritized domains, selected sub-domains, and proposed indicators and measurement methods to field-test. The literature includes conceptual papers proposing the elements or "domains" of CC.[v, vi, vii, viii, ix, x, xi, xii, xiii] (Need to add Hastings, Chaskin, Easterling) Some propose indicators and/or measurement methods, most of which are qualitative.[xiv, xv, xvi, xvii, xviii, xix, xx, xxi, xxii] Few have actually tested indicators,[xxiii, xxiv, xxv, xxvi, xxvii, xxviii] and fewer still have validated them.[xxix, xxx]

The purpose of this working paper is to contribute additional experience in more systematically measuring selected domains and sub-domains of CC within a final evaluation of a child survival project.

METHODS

The five-year CS-18 Project (2002-7) aimed to improve child health and nutritional status of 80,000 minority people in Huong Hoa and Dakrong Districts in Quang Tri Province in Central Vietnam through the increased use of life-saving health interventions, both behaviors and services. The interventions were maternal tetanus toxoid; antenatal iron; clean delivery; delivery by trained attendant; essential newborn care (immediate warming and breast feeding); postpartum maternal vitamin A; exclusive breast-feeding; appropriate complementary feeding; and recognition and care-seeking for maternal, newborn, and childhood danger signs. The Project delivered these interventions through mobilizing demand and improving the availability and quality of services. The principal strategies were strengthening Ministry of Health (MOH) outreach and facility-based antenatal care, delivery and growth monitoring services; training Community Guides (CGs) to impart healthy behaviors through interactive mothers' groups (including monthly meetings covering a series of 14 topics, Breastfeeding Support Groups and drama competitions); and capacity building of MOH and community partners at provincial, district, commune, and village levels.

Vietnamese rural communities are well-mobilized through political governance (People's Committees) and national mass organizations (Women's Union, Youth Union, Farmers' Union, etc.). Hamlet leaders can easily "mobilize" citizens through public address systems to announce mandatory meetings or important information. Ethnic, community, and family loyalties also can facilitate mobilization. Apart from 60 years of socialism, rural Vietnamese communities have traditionally had a solidarity that transcends the self-interest of individuals.

The Project, then, aimed not to further mobilize communities, but rather to harness their existing mobilization and enhance their capacity to improve and sustain their health. We use the term "community" broadly to refer to five levels: provincial MOH partners, district MOH partners, Commune Steering Committees (CSC) which includes Commune Health Center (CHC) staff, CGs, and villagers themselves. The Project intended to enhance capacity through: (1) technical training (province, district, CHC, and CG); (2) management training (province, district, CHC); (3) "facilitation skills" training (province, district, CHC, CG, and sometimes villagers); (4) active learning (all levels); and (5) learning through positive role models (all levels, but mainly CSCs, CGs and villagers), a variation of the "positive deviance" approach.[xxxi]

Quang Tri Province is one of 14 (of 66) border provinces with large minority populations. Dakrong and Huong Hoa, adjacent to the Laotian border are home to Van Kieu and Pakoh people who together comprise 44.7% and 13.8% of the districts, respectively. Traditionally, because of inaccessibility, language, and culture, development has lagged among Vietnam's 54 minority groups, and the Van Kieu and Pakoh are no exception.

As required by the donor (USAID), we implemented a final evaluation of the Project in the summer of 2007, including a population-based household survey (May), which indicated that all Project targets had been exceeded.[xxxii] To verify and

explain these quantitative findings, an external evaluator (JF) conducted a participatory evaluation, facilitating an 11-person team [13] of internal and external health professionals and translators in qualitative field work (July 13-18).

We reviewed SC's working list of CC domains, sub-domains (Annex) and questions, and adapted questions (Table 1) to explore domains felt to have been strengthened by the Project. We added these to question guides drafted to address the donor's information needs.

In the field we divided into two teams. We conducted group interviews of provincial leaders and trainers and district counterparts (District Steering Committee and trainers/ supervisors) in each district. Within each district, we conducted group interviews with CSCs, including representative of the People's Committee, Women's Union, and CHC staff, among others. We interviewed groups of CGs in three (Dakrong) or four (Huong Hoa) communes in each district. We also interviewed two groups of villagers in one village [14] (of about 10) associated with each commune – always mothers with children under age two years, plus groups of members of Breastfeeding Support Groups, grandmothers, or men. We only selected Van Kieu communes, choosing seven to represent a variety of project starts (approximately a quarter of all 31 communes started a year of intensive implementation each calendar year), accessibility to the main road, and perceived management effectiveness of either commune or hamlet partners.

We translated all question guides into Vietnamese, with bilingual (English-Vietnamese) team members carefully agreeing upon the underlying concept and language to express it. Vietnamese team members generally conducted the group interviews in Vietnamese down to the commune level (CSC and CG). Interviews in villages were generally conducted in Van Kieu, with the help of bilingual Community Guides (Vietnamese-Van Kieu). Only two team members understood some Van Kieu. All team members contributed to questioning and probes, sometimes necessitating translation from English to "Hanoi Vietnamese" to "Quang Tri Vietnamese" to Van Kieu and back again. Three to four team members took notes in English or Vietnamese. At the end of each set of interviews, each team reviewed each question to verify responses and reach consensus. A team member (JF, DM) maintained an English summary. None of the 34 (4-8 page) question guides, including CC questions, was completed, given their length, time for translation, village pace, and the recognized need to prioritize the donor's information needs.

We analyzed responses by transcribing the English language results into Excel with additional variables: team, level (province, district, CSC, CG, or village), accessibility to main road (high/low), estimates of commune or village management (high/low), location, and the number and type of respondents. We sorted them by CC indicator and level.

We assessed all responses semi-quantitatively: low (=1), medium (=2) or high (=3) according to categories derived after reviewing all responses; and we assessed evidence for change during the Project: yes or no (Table 2). When summarizing (Tables 4-6), we refer to respondents as "units," which usually represented a single group interview, but sometimes (at the province, district, or community level) comprised two separate group interviews. We calculated aggregate CC by an un-weighted sum of all responses.

RESULTS

We asked for and obtained responses for 80 of 140 (57%) possible questions related to CC within the 34 question guides (Table 3). Specifically, we had 23 responses for collective efficacy ("confidence"), 42 for sense of ownership (comprised of: two for "contribution," 12 for "credit," 11 for "responsible", and 17 for "sustain"); eight for information equity ("information"); and seven for social cohesion ("trust").

We were unable to obtain any responses from the one "unsuccessful" village, mainly because of difficulties in language, understanding, and insight. We obtained 11 responses from Commune B-3, the commune with a weak management: three from the Steering Committee level, four from the CGs, and five from villagers.

Collective Efficacy We asked 23 informants at all levels, "Do you feel that your team (or the communities or your community) is/are more confident to solve health and nutrition problems than before the Project?"

[13] Dr. Judith Fullerton, external consultant; Dr. David Marsh, SC/headquarters; Dr. Nghia, MOH/Dakrong; Ms. Nguyen Thi Tam, MOH/Huong Hoa; Ms. Nguyen Ngoc Anh, SC/Hanoi; Dr. Tran Thi Lan, SC/Quang Tri; Mr. Ngo Tien Loi, USAID/Hanoi; Dr. Pham Bich Ha, SC/Hanoi; Ms. Tran Thi Kiem, SC/Hanoi; Dr. Mai Nam, MOH/Quang Tri; and Mr XXX, MOH/Quang Tri.

[14] We use the term "village" and "hamlet" interchangeably throughout this report.

Provincial partners commented on their own confidence and their perceived confidence in communities. Several provincial trainers and directors said:

> *Previously we worked individually. Now we work as a team...We support each other...We have more confidence… My confidence has increased from 0 to 10 on a 10-point scale! ...Our team has, on average, increased 3 points on a 10-point scale, but I cannot say where we started* [or ended]*…I think our capacity has improved so we feel more confident. For example, when a new project comes in, they tell us that the planning process is better – easier – faster…The new M&E* [monitoring and evaluation] *system helps us feel more confident because we have accurate MCH* [maternal and child health] *data that we can apply to other projects."*

Regarding, communities' confidence, the same provincial leaders said:

> *The project has done much capacity building that has made commune health workers, district managers and the community more confident. They can apply and transfer these skills to any other problems in the district…Supervision is making CHC staff confident... Communities' confidence has increased overall 5 points on a 10-point scale...*

They cautioned that the Project was one of several possible explanations for rising confidence. For example, one mentioned, "Communities' confidence might have increased due to rising economic conditions." Another noted that rising CHC staff confidence could be attributed "to other projects' activities."

The leaders in District A reflected:

> *Yes, we are confident even for other projects. Our communes can conduct ANC* [antenatal care]*, postpartum care and weighing…I can't say that we are 100% confident…maybe 70% of our communes have the knowledge and skills to stand on their own feet to do project activities…What has changed is that people don't wait to be directed to do things…And at the community level, mothers' and fathers' knowledge and skills have increased, but sometimes poverty limits choices, as in purchasing nutritious food.*

The team from District B confirmed community confidence based on competence, both in technical areas as well as in reflection.

> *The communities are confident… Practice increases confidence… Minority people weigh children "better" than Kinh* [majority or Viet] *people who have not had training…Increased participation increases awareness and a more detailed analysis of needs...They share knowledge with one another...*

A new District B Steering Committee member said, "I am a new member and a new mother. My knowledge, and communities' knowledge, of maternal danger signs enabled me to better prepare for difficulties."

CSC members confirmed the provincial and district impressions. Their confidence seemed based on management, organizing, and problem-solving skills.

> CSC A-1: *Yes, we are confident…For maternal hemorrhage, the village can mobilize, and the Women's Union can finance transport to hospital...For hoof and mouth disease* [a current national outbreak, especially significant in Quang Tri]*, we will hold a community meeting, kill sick animals and compensate farmers... Youth Union members and Population Motivators already apply the* [Project's] *"positive practices" approach in economic development and farming...Fathers join in child care!*
>
> CSC A-2: *After learning about problem situations, we will report to the upper level, and while waiting for central advice, we will arrange local mobilization meetings…The Project has enabled us to act more professionally and systematically in growth monitoring and ANC.*
>
> CSC A-3: *Community Guides will maintain monthly Community Meetings; monthly review meetings, and men's groups. We are confident that they have the skills to do this.*
>
> CSC B-1: *Health staff have received help from this project to become more skilled, but community members also help.*
>
> CSC B-2: *We see the importance of collaboration between commune and village in order to solve problems…With "positive deviance"* [a Project approach]*, good practice is implied…We encourage people to be aware of the current hoof and mouth outbreak; there is a good system for dealing with it. They get instructions and count animals.*

CSC B-3 (unsuccessful): *Yes, we learned planning and implementation, but need to know more and train new Community Guides as some have migrated to Laos...The Project has brought all levels together for problem-solving…We learned about hands-on supervision…We have already integrated this into EPI and malaria* [which were not Project focus areas].

CSC B-4: *Yes, whatever we do regularly will build our confidence.*

CGs expressed increased confidence based on improved knowledge (danger signs) and skills (newborn resuscitation). They illustrated with applications to new program areas (malaria and dengue) and new ways of thinking in their villages (less shyness about maternity, more communication about health, and better local problem-solving).

A-1 Guides: *Yes, from what I learned, like newborn resuscitation.*

A-2 Guides: *Yes, for example malaria: when we recognize it, we inform the village head, organize a community meeting and respond. Before we treated it with herbs. Now we use medicine…Before women were shy about pregnancy, prenatal care and delivery, but not now…Before the Project, people were unaware of their own, let alone the community's, health. But now they talk to one another.*

A-3 Guides: *Yes, we are confident that we can do our job.*

B-1 Guides: *Community members can apply their learning to other issues like malaria.*

B-3 Guides (unsuccessful commune leadership): *Yes, if we get more help...We have already tackled dengue.*

B-4 Guides: *Yes, we are more confident. For example, before a woman with pregnancy-related bleeding would stay home. Now she knows danger signs and will come to the CHC…Yes, we can gather all the community experts, such as elders, Women's Union members, and Youth Union members, to solve problems.*

The confidence was evident among the villagers as well. "Yes, we are confident" (man from village A-3). "Yes, everyone can help with labor or money. Even one mother breastfed a mother's infant when she got sick and had to go to the hospital" (mother from village A-1). One grandmother somewhat reticently said: "Yes, we are confident, but mainly to continue present activities" (village B-3 with unsuccessful commune leadership). But all eight women and two grandmothers in village A-3 expressed great confidence.

In fact, all 19 responding units expressed medium to high confidence (Table 4) with evidence in three quarters (14/19) that this occurred because of the Project (Table 5). Upper levels (province, district and CSC) seemed more likely to express high confidence than CGs or villagers (8/10 vs. 3/9 units, respectively).

Sense of Ownership We selected four variables to assess sense of ownership of Project activities or approaches: ownership of the credit for good outcomes, responsibility for their health, plans to sustain activities, and contributions.

<u>*Credit for Success*</u> We asked CGs and villagers, "If most mothers in your commune are now practicing clean delivery, who takes credit for that?" Guides in District A gave credit widely. A-1 Guides named "the Project or upper level people whom we don't know, Ms. Nghia" [district trainer, physician, and evaluation team member], and Community Guides." A-2 Guides named "the Project, Save the Children, and Community Guides." A-3 Guides gave credit to everyone for any good outcome, not just clean delivery: "Community Guides, mother and family, community leaders, health staff, and Project."

The Guides from District B were as generous. Six B-1 Guides agreed, "Previously women used to deliver outside the home in a birthing hut or in the field. Now the 75% who stay at home deliver in their home. Credit can be shared by the mother and family, health staff and the project."

Similarly the seven B-2 CGs explained,

Women use clean delivery kits. A family member goes to the Community Guide to ask for it. If they need to get to the Commune Health Center [for delivery problems]*, there is a hammock* [hand or bicycle-carried for transporting ill patients] *located at the home of the village head… Everyone knows where it is… Community members will help to carry the woman.*

B-3 (unsuccessful commune) and B-4 Guides were similarly expansive. The five B-3 Guides named: "First are the Community Guides and Women's Union members. Then CHC staff, mothers and fathers and district and Project people...Five years ago we didn't have anything!" The five B-4 Guides, all male, explained:

> *Before, with maternal bleeding, we would stay home. Now we know danger signs and go to the Commune Heath Center. Credit goes to Community Guides, families, and mothers, as well as Women's Union, elders, hamlet health workers, and CHC staff.*

Villagers also named the same array: "Women's Union, Family Planning Promoters, Community Guides, CHC staff, Miss Nghia [trainer-physician, and member of evaluation team], and all the mothers" (6 mothers, 2 grandmothers, and a sister-in-law from village A-1). This was the sole example of women giving credit to themselves. The A-3 men's group said, "A husband gets credit for taking care of his wife. Family members and the community also get credit for supporting them." The eight mothers and two grandmothers from the same village agreed, giving credit to "our mothers, family members, commune leaders, the project and district staff…We work together." B-1 villagers named, "the Project, Community Guides, hamlet leaders, mothers-in-law, and neighbors." The seven B-4 women said, "Everyone!"

All 10 responding units expressed moderate (2) or high (8) levels of ownership (Table 4), with a few (3/10) attributing it to the Project (Table 5).

Responsibility for Health We attempted to assess personal responsibility by asking CGs and villagers, "Do you think that the health staff is the only one who is responsible for your and your baby's health?"

The nine A-1 Guides said,

> *The mother, father, and Women's Union are responsible for responding to illness…The hamlet health worker and families are responsible for maintaining health, like with mosquito nets or sanitation…In the past, it was not practical to use the CHC or hospital, and people would use holy rituals. Now they go to a health facility and then perform the ritual. The road and the Project share the credit for the change.*

Their six A-2 counterparts agreed,

> *Many individuals have been involved: Farmers' Union, Women's Union, families, grand-parents, and mothers... Previously, people would conduct a holy ritual to treat illness. Now they go to CHC first and pray if there is no improvement after two or three days.*

Their six counterparts elsewhere were succinct: "Family members first, then health staff, then the community" (A-3 Guides); "Mother and family members share responsibility" (B-1 Guides); "There is increased facility delivery. Family members make the decision" (B-2 Guides); "Hamlet health workers, husband, family members, mothers, CHC staff…everyone!" (B-3 Guides [unsuccessful]).

The male B-4 Guides related,

> *The mother is responsible. Also her husband, family and local people...Now family is more responsible. In the case of illness, they are less likely to resort to a holy ritual and more likely to bring the person to the CHC… Before, the hamlet health worker always referred to CHC. Now they can give some information first* [and presumably avoid unnecessary trips].*"*

Women from Village A-1 summarized, "The mother and her family are most responsible. The Community Guide is an advisor, but mainly it is us...Before the Project, we just did not know what to do."

Mothers and grandmothers in Village B-3 (unsuccessful commune) agreed,

> *The husband, parents, and mother are most important. Then Community Guide, CHC staff, and hamlet leaders…the mother is mostly responsible. Then family, hamlet, and commune…The Project brought ANC. Now all newborns survive. Previously half died..*

Their B-4 counterparts focused on responsibility for treating illness, naming "Miss Huong" [the midwife, who joined the evaluation team that day] and CHC in general."

Responses ranged from low (1) to medium (2), but most were high (7) (Table 4); more than half (6/10) reported that the Project was responsible for the change (Table 5).

Intention to Sustain We explored plans for sustainability from the district down by asking informants, "Please tell us if you think that some Project activities can be sustained after the Project stops."

The District Steering Committee of District A said,

> *We want to sustain all the activities, however we fear difficulty because we need a certain budget – and without external funds we will probably not be able to do everything. So we will prioritize the activities…We will continue to do the work, but no more training!…The Project has had the authority of the government – so we will continue to use the methods brought by the Project…For example, the government decides if ANC is one day a month. CS18 taught us to do outreach ANC, and we will sustain this because now ANC is more accessible to women and offered several days a month. The quality of the service is better as well."*

Likewise Communes from District A took an optimistic, yet realistic, view towards sustainability. CSC A-1 said, "We will continue, but the activities will be less intense, especially because NERP [nutrition education rehabilitation program – a "hearth" model for rehabilitating malnourished children] inputs will cease. We will integrate some parts with other activities, but less frequently."

CSC A-2 members observed,

> *We are already continuing the Community Meetings* [SC intensive support ended over 18 months ago] *and Breastfeeding Support Group in one village…Also weighing and antenatal care with iron and TT and home visits by Community Guides and by CHC staff for malnutrition…The Women's Union and Youth Union could continue quarterly Community Meetings in some villages if the topics were a local priority.*

CSC members A-3 observed,

> *We will maintain monthly review meetings and men's groups every three months…We have finished the 14 Community Meeting topics, and are now reviewing them and planning contests on their content…Of course, the CHC will sustain the outreach days for antenatal care and baby weighing.*

On average, the CSCs in District B seemed a bit less sanguine. CSC B-1 reported, "The Steering Committee is already thinking about ways that it can find money for sustainability. We are looking at government budget." A leader on CSC B-2 was concerned that,

> *Community guides will not keep up with activities once there is no incentive...I will encourage the Steering Committee to sustain the activities, but it is hard to predict what will happen…It is important to promote collaboration between villages and the Steering Committee …The CHC will keep up growth monitoring activities. It is important to promote collaboration between village and steering committee*

CSC B-3 (unsuccessful) reported, "We have not completed the 14 Community Meeting topics [nor should they have as they were in the last implementation phase], but we plan to review them after the Project stops…We will continue Women's Union meetings, song contests, home visits, and ANC outreach." Their B-4 counterparts stated,

> *Yes, we already sustain ANC, postpartum care, growth monitoring and monthly review meeting….Sustaining the Community Meeting will be the most difficult because of lack of budget. But if the content remains rich, we can integrate it into other meetings."*

CGs combined advocacy, wisdom, and even dry humor. Guide A-1 said, "The Project may close, but we must remember what we have learned!" Guide B-4 said,

> *The Project ended in May, and we conducted a Community Meeting in June, so it is sustained! ... We cannot abandon our pregnant women! Plus the information is useful for youth about to enter married life. We can use it in* sim *houses* [traditional structures where adolescents gather for group learning] *where the Youth Union already has a curriculum.*

Guide B-2 said, "We think it is possible to continue, but maybe less frequently or integrated with other meetings that occur once each month, but on a different day – or twice monthly in event of emergencies."

Villagers expressed a commitment to less intense continuation. "We will integrate the Community Meeting topics into the "Two Child Solidarity Club" [couples pledged to limit family size]…We will continue the drama competitions and Breastfeeding Support Group, but need inputs like pictures [for those who cannot read] and videos. But we don't need candy [which the Project had supplied as incentive]" (9 A-1 women). "When new mothers come to the commune, we will arrange a meeting to share information with them" (10 A-3 women). "We will continue baby weighing and

Community Meetings" (13 B-1 women). "We will continue to take care of our wives and children" (7 B-1 men). "We will continue growth monitoring, Community Meetings, ANC, and Breastfeeding Support Group" (6 B-3 mothers [unsuccessful commune]). "We will continue the Community Meetings – even without candy!" (8 B-4 women, laughing).

We classified most responding units (11/16) as medium with a few low (2) or high (3). CSCs' intention to sustain activities varied widely (2 low, 3 medium, and 2 high) (Table 4). Three quarters (12/16) of the units either were already or were planning to sustain Project activities (Table 5); therefore, their sustaining can be attributed to the Project.

Contributions We only obtained two responses, both from villagers (Table 4). Eight B-4 women variously reported attending, "…nutrition competition, but I only observed...I was interested in all Project activities. I encouraged neighbors to attend Community Meetings and drama competitions…I attended community meetings, especially on newborn care." Six B-3 (unsuccessful commune leadership) mothers reported "…participation in growth monitoring sessions and Community Meetings" and "…encouraging others, including my husband, to attend other events."

Overall sense of ownership, the sum of the above four sub-domains (Table 6) was high at CG and village levels with possible "scores" ranging from 67% to 100%. We only inquired about the sub-domain of sustainability at CSC and district levels, so summary "ownership" scores for those levels are less meaningful.

Information Equity We asked CSC members and CGs, "How do community members obtain information about the health of their community?" to asses the free flow of information.

CSC A-1 reported a range of information sources and exchanges, noting that

> *Children are weighed monthly, and mothers are advised. Also mothers receive advice at EPI* [expanded programme for immunizations] *and ANC. And mothers encourage each other to attend ANC…The Steering Committee has monthly review meetings. One member of the Steering Committee is responsible for 3 villages…There is plenty of information exchange at Community Meetings. These are at the village leader's house, and there are lots of posters and a health map. The hamlet health worker is in charge of that."*

CSC A-2 responded similarly, listing sources of information:

> *Community meetings, monthly review meetings led by the Steering Committee and twice monthly review meetings led by CHC, home visits, weighing and ANC outreach, and the map that is used at Community Meetings to track malnourished children indicating families who need advice. More active villages are better at updating maps.*

CSC A-3 took a slightly different tack:

> *We have television and newspapers and radio, but they don't give concrete information like we got through the project…Knowledge and practice have changed here. Husbands, in-laws are supporting women to stay home and exclusively breastfeed because of the information from this Project.*

CSC B-1 reported, "At monthly meetings the steering committee gives information about community problems." The evaluation team did note a map showing health indicator measures at the CHC, and a map at the B-1 hamlet leader's house showed the status of childhood malnutrition, pregnancy, and new mothers for each house.

CSC B-2 stated that a "monthly report is given to the People's Committee by the CHC…all work together to implement plans and distribute information."

CSC B-4 said,

> *The key person is Community Guide, who supplements Community Meeting information with household visits and sends a monthly report to the CHC, which forwards it to CSC…Previously we had a map for malaria. Now we have added malnutrition and pregnant women and new mothers. It is kept at the "village home"* [communal gathering structure] *where we have Community Meetings. The Guide updates it monthly and shares information at meetings…Guides evaluate malnutrition cases using the map."*

CGs also mentioned the maps. Guide B-3 (unsuccessful commune leadership) said, "There is a health map in the hamlet leader's house where we have the Community Meetings…hamlet leaders present information at Community Meetings……Also there is a pregnancy monitoring chart at the CHC [indicating expected date of delivery by hamlet and

name]." Guide B-1 agreed, saying, "We have a hamlet map showing houses with specific indicators and a public display of certain data on walls of the Commune Health Center…also TV [satellite only] and video, but not newspapers since so many are illiterate."

Assessments ranged widely: 1 low, 4 medium, and 3 high (Table 4), with most (7/8) attributed to the Project (Table 5).

Social Cohesion We explored social cohesion by asking Community Guides and villagers, "Are there [new] lay people [not Guides or other professionals] in your community who are trusted for advice about mother and baby health because of what they did during the Project?"

CGs' responses were a mixture of traditional and new sources: "Village head, Women's Union, and "positive people"…Normal everyday people advise one another" (9 A-1 Guides). The B-4 male guides focused on traditional sources: "Elders, former soldiers, and well-educated who practice good behaviors."

The six B-1 Guides said,

> *When we see people in meetings who are more active participants than others, we say, "Follow them, they can be trusted," because the person may have already demonstrated a better outcome…You have to work with families to change their thinking and behavior.*

Likewise, villagers named traditional and new trusted sources: "Older, experienced mothers and parents-in-law" (7 women in Village B-4). The nine A-1 women agreed, "We go to women who know many things, like [pointing to] the woman in green." Similarly the 10 B-1 women pointed to one of the respondents, who had observed deliveries and acquired knowledge. The nine B-2 mothers named everyone except themselves!

Most of the seven responses were medium (3) or high (3) (Table 4); none were attributed to the Project (Table 5).

Overall Less than one fifth (5/23) of the units had two or fewer opportunities to respond to a CC question. Despite their limited opportunities, the provincial and district levels had nearly perfect scores (3/3, 5/6, and 3/3) (Table 4).

All but one CSC had three opportunities, with scores ranging from 5/9 to 9/9. The "weak" CSC scored higher on aggregate CC than the mean of its six counterparts (5/6 [84%] vs. 6.8/9 [76%]).

CGs had three to five opportunities to respond. The B-1 Guides and the A-1 villagers were noteworthy for scoring 14/15, the best scores of all units asked more than three questions. Overall, villages reported good community capacity, with scores ranging from 2/3 to 14/15.

Aggregate CC across the three levels within communes was not consistent (Figure 1), although it was generally high. We looked for clustering of CC domains among CGs (Figure 2) and CSCs (Figure 3). CC seemed similar across domains in some Guides (A-1 and B-1) and some CSCs (A-2, A-3). Respondents commonly attributed their capacity to the Project (44/72 [61%]).

DISCUSSION

Community Capacity

Overall We found community capacity at every level, and much was due to the Project, mostly through spontaneous responses. In fact, this was probably under-estimated because we often neglected either to follow the relevant prompts or to inquire about attribution. We also heard wise counsel about not attributing too much effect to this Project from sources as wide-ranging as provincial partners and CGs who identified the possible roles of other projects and the road, respectively. Both mentioned the potential role the rising economic conditions.

We did not specifically inquire about the role of "positive practices" and "positive people" although this approach under-girded important community activities (Community Meetings, Breastfeeding Support Groups, and NERPs). We were pleased to hear three spontaneous references to this approach, from CSC A-1 ("…Youth Union members and Population Motivators already apply the 'positive practices' approach in economic development and farming…"); CSC B-2 ("…With 'positive deviance,' good practice is implied…"), and A-1 CGs, referring to sources of information ("Village head, Women's Union, and 'positive people'…Normal everyday people advise one another…"). B-1 CGs captured the same idea without the word "positive": "…Follow them, they can be trusted, because the person may have already demonstrated a better outcome…You have to work with families to change their thinking and behavior."

Attributing recommendations about positive practices or people solely to the Project is risky, however. Vietnam reveres Ho Chi Minh, the founder of their modern state. He, too, advised imitating positive people and practices. Indeed, the Project took advantage of his wisdom and explained positive deviance through his adage. It may be impossible to sort out the basis for understanding and recalling the approach.

Weak vs. Strong One of the purposes of measuring community capacity is to succinctly and validly assess its level across one or more domains or sub-domains, thereby permitting examination of associations between inputs and CC and between CC and other desirable (usually individual) outcomes. Researchers were not blinded to the "unsuccessful" labels assigned to Commune B-3 and Village A-2. Aggregate CC for CSC B-3 was not less than for the six other communes (Table 4), based on three indicators (information equity, intention to sustain, and confidence). The inability to even inquire about CC in village A-2 (therefore no responses) seems consistent with low capacity.

Clustering We looked at clustering of domains within CGs and CSCs and within the cascade from CSC to CG to village. While some patterns are apparent (exact equality in CSCs A-2 and A-3), the limited number of measurements and their imprecision (high=100 [3/3], medium=67 [2/3], and low=33 [1/3]) preclude drawing conclusions.

Process

General In general, the process holds promise, but the methods would not withstand rigorous scrutiny, for which we do not apologize. This pilot-test was an opportunistic attempt to begin to more systematically measure community capacity within another activity. Because it was an "after-thought," we lacked formative research about local terminology and understanding. Similarly we failed to back-translate the questions; however, local team members dialogued extensively to capture the meaning of the concepts in both English and then Vietnamese. We neglected to train interviewers, either in the rationale for the study or in the questioning and probing; however, most of the interviewers were involved in designing and/or translating the questions. Data collectors were generally internal, and were surely, if unconsciously, biased towards hearing and recording certain information. Furthermore, we were not blinded to one important variable: success – although this cross-tabulation was not important in this pilot-test. Finally, we did not pre-test the questions – which left some lack of clarity (see below).

We lacked a baseline; however, we gathered reasonable evidence to attribute some change to the Project. On the other hand, we were pleased to observe how provincial partners readily reacted to an *ad hoc* request to rate change "on a 10-point scale." We did not systematically test this approach, but it is unlikely to have succeeded below the district level. An alternative, semi-quantitative ranking strategy is to use formative research with community members to develop "high, medium-high, medium, medium-low, and low" scenarios for each indicator and later ask respondents to decide which scenario best describes their situation now (and perhaps at baseline). Another approach is to use the familiar Likert scale (strongly disagree, somewhat disagree, neither disagree nor agree, somewhat agree, strongly agree) to characterize attitudes regarding a series of statements. Again, this is abstract, and may not succeed at less educated levels.

This raises another complication and limitation of our work. We attempted to assess five levels of community! While this was sensible within the context and aims of the Project, it diluted our focus and reduced our ability to have confidence

in any specific finding. On the other hand, it provided a rich learning case study. Another complication was the need for triple and even *quadruple* translation! Surely information was "lost in translation" as well as lost because we ran out of time due to the time required to answer questions.

Developing categories from the data was arduous, but at least accommodated the data. Only one of us (DM) categorized the responses. A more robust approach would be for at least two independent scorers to grade all responses and then reach consensus together on their disagreements.

The analysis, apart from quoting people's words, was imperfect. Assigning scores of 3, 2 or 1 to categories of high, medium, or low begs difficulties. Where is "none" or 0? How can we be sure that the distance between low and medium (2-1=1) equals the distance between medium and high (3-2=1)? Moreover, we only measured one sub-domain for three of the four domains (collective efficacy, information equity, and social cohesion). Only sense of ownership was broadly explored through four sub-domains.

Regarding data presentation, we have seven pages (nearly 4000 words!) of direct transcription with occasional phrases of interpretation. Much is repetitious, but for this Working Paper we felt that archiving all responses was suitable (and easier) than succinctly summarizing and selecting illustrative quotations to support conclusions. In fact, responses to other Project questions not directed to CC included much relevant material, but harvesting those was unrealistic.

Tables 4-6 are cumbersome, but are better than other versions we tried. The bar-charts are a welcome visual relief, but are based on scant data, coarsely categorized. The bars lend false precision to these qualitative data.

Specific Indicators **Collective efficacy** is the belief, not the evidence, that a group can do something. Some ague that is the most important indicator of CC.[xxxiii, xxxiv, xxxv] We felt that our question worked well. It specified a time dimension (before vs. after Project). As expected, the higher the education of the informants, the richer the response. We already noted how provincial partners readily quantified their responses when prompted. It is possible that rural, Vietnamese, communist communities would tend to be "communal" and "shy" which could constrain proudly declaring confidence! Indeed, our Vietnamese team members observe that like anybody, Vietnamese people like to receive compliments and credit for their accomplishments, but they want others to speak – not themselves. In Vietnam if someone claims credit for himself, others will think he/she is immodest and boastful, both negative attributes.

Our approach to **information equity**, specifically the sub-domain enhanced free flow of information, was mixed. We lacked a time dimension, although reference to events (Community Meetings) or tools (upgraded maps) specific to the Project permitted attribution, especially since these were included in probes – if they were asked. However, the notion "health of the community" is abstract. An open-ended inquiry into the methods of obtaining information often stimulated a recitation of less interesting settings, such as pre-existing child growth monitoring sessions. On the other hand, sources of information in rural Vietnam are so limited that the fact that CSC members could mention five or more channels was encouraging. Not surprisingly, CGs focused on the CM and maps. We missed a valuable opportunity in not inquiring of villagers! CG A-2 reported that villagers "now talk to one another" – a major observation, implying a new network of both information and trust.

We intended to measure **social cohesion** through the sub-domain of trust. Our question and probes captured exactly what we sought, but it was too complicated in the field: (lay people) AND (trust) AND (advice about mother and baby) AND (based on Project work) NOT (old leaders or CGs). Not surprisingly, we heard a mix of traditional and new sources of information. Noteworthy was CG A-1 who reported that "normal everyday people advise one another," thereby, as above, implying a network. Unfortunately, we failed to clarify whether this was a new phenomenon. Clearly, the Project's Community Meeting approach and especially its stress on learning positive practices from one another is consistent with increasing "everyday people advising one another."

Finally, "trusted source of advice" and "free flow of information" seem quite similar. Indeed, we probably have two measures of information equity rather than one each for information equity and social cohesion. Or perhaps we are at the overlap of the two domains. Ironically, given the pre-existing high levels of social cohesion and low levels of sources of information, emphasis on information equity seems justified.

We invested heavily in the **sense of ownership** domain, exploring four sub-domains, each of which performed differently. The sub-domain of importance of the activities as measured by intention to sustain them worked well, probably because it is concrete. Some of the richness of the answers may have been primed by the April 2007 Sustainability Workshop where participants discussed several flexible strategies to retain the essence of project activities. Some respondents probably were at the workshop or heard about it.

The sub-domain of ownership of credit was more difficult, but not because it was cast as a hypothetical "if" statement which would be difficult for some unschooled individuals to understand. In fact, in Vietnamese, the question was stated as,

> You just told me that you saw children in your village being healthier and women and family members commonly using clean delivery kit at birth so your children do not get cord infections. That is great. So could you tell me who (plural) takes credit for all these achievements?

As above for "confidence," rural Southeast Asian communal culture will hinder some individuals from proudly claiming credit. The range of answers suggested that the question was understood and that credit was widely shared. Given the cultural context, it is possible that credit may have been too widely shared.

We explored the sub-domain of responsibility starting with a yes/no question followed by probes. However, confusion was common from the outset because many respondents focused on where to seek care for danger signs (a Project focus) or illness – not an unreasonable response. We sought, however, responsibility for maintaining health in a broader sense, i.e., promotive, preventive, and curative. When we prompted interviewees for non-curative responsibility, they listed official government sources of health promotion, i.e., bednet distributors or sanitation efforts. On the other hand, many respondents did mention mothers and families, along with the usual list of official local groups (Women's Union, etc.).

Our inquiry into contribution was limited, perhaps because in the field we realized that the question was silly. Indeed, the Project depended on huge contributions of time from partners at every level. The fact that large groups of busy people appeared for our questions was proof enough that they were "contributors"!

Recommendations

1. Continue to pilot-test sub-domain indicators, even in settings for other purposes.
2. Use formative research to inform pre-determined categories of responses
3. Use as many ordinal categories as feasible, i.e., more than three.
4. Pilot-test all questions and probes.
5. Use quantitative (10-point scale) or semi-quantitative (Likert) methods whenever feasible.
6. Narrow inquiry to one or two levels of "community."
7. Carefully select (and justify selection of) a few sub-domains.
8. Systematically seek explanations for changes in CC outside of project.
9. Allow enough time to ask each question with all probes.
10. Continue to explore concise data display methods.

***

Table 1: Domains and Sub-Domains Explored in the Final Evaluation

Domain	Sub-Domain	Source (see Annex)	Question	Probes
Collective Efficacy	Perceived efficacy to solve problems as a group	7c	Do you feel that your team (the communities, your community) is/are more confident to solve health and nutrition problems than before the Project?	Why? Or why not? How?
Information Equity	Enhance free flow of information	9b	How do community members obtain information about the health of their community?	Discussion at meetings? Public display of map showing vulnerable HH? Pubic display of measures of health (indicators)?
Sense of Ownership	Importance of issue or program to participants	6a	Please tell us if you think that some Project activities can be sustained after the Project stops.	Outreach health services? Community Meetings? Home visits? Drama competitions?
	Sense of responsibility for program/activities	6b	Do you think that the health staff is the only one who is responsible for your and your baby's health?	Personal role? Family roles? Differences now vs. before the Project?
	Sense of ownership of credit for program/activities	6e	If most mothers in your commune are now practicing clean delivery, who takes credit for that?	Community Guides? Mother and family? Community leaders? Health staff? Project?
	Contribution to program/activities	6c	Please tell us if you contributed to the Project to make you and your baby healthier.	Attending Community Meetings? Tea for Community Meetings? Place for Community Meetings.? Attending drama contests? Attending NERP? Contributions to NERP? Encouraging others to attend events?
Social Cohesion	Trust	5f	Are there lay people in your community who are trusted for advice about mother and baby health because of what they did during the Project?	NEWLY identified people, like neighbors or other community members. NOT old leaders or Community Guides.

Table 2: Definitions for Quantifying Indicators and Attributing Change to Project

Characteristic		Indicator						
		Confidence	Ownership				Information Equity	Trust
			Credit	Responsibility	Sustain	Contributions		
Quantification	**High**	Detailed explanation; transferring skill to other challenges	Self and others "below" (or just "self" for community members – since no one "below")	Mainly personal (i.e., mothers or families at the head of a list)	Yes, already occurring.	Regular time, significant tangible contribution, and/or encourage others	Improved sources of information and evidence of use	New "everyday" sources more important than traditional
	Medium	Brief explanation; often with perceived need for continued support	Self and others "above"	Personal and others (i.e., mothers or families in the list)	Yes, with realistic plans.	Irregular time and/or modest tangible contribution	Improved sources of information	Traditional and new "everyday" sources
	Low	Minimal evidence	Others "above" only	Others	Doubtful without extra resources	Not much time	Mostly the same sources	Traditional sources
Change during Project		Explicit attribution or reasonable inference to Project role.	Explicit attribution to Project since question is hypothetical ("If…").	Explicit attribution to Project.	Explicit statement of sustaining a <u>new</u> Project approach.	Explicit statement of contributing to <u>new</u> Project approach.	Explicit attribution to Project information approach.	Explicit attribution to Project.

Table 3: Responses by Level and Indicator

Level	Community Capacity Indicator (see underlined words in Table 1)							
	Contribution	Confidence	Credit	Information	Responsible	Sustain	Trust	Total
Province		2						2*
District		4				1		5*
CSC		7		6		7		20
CG		6	7	2	7	3	3	28
Villagers	2	4	5		4	6	4	25*
Total	2	23	12	8	11	17	7	80

*Fewer than these numbers of responses appear in Tables 4-6 where some units are assessed from multiple sources.

Table 4: Strength of Community Capacity Sub-Domain by Unit*

Unit	Sub-Domain							Total		
	Conf	Cred	Resp	Sust.	Contr	Info	Trust	N	D	%
Province	3							3	3	100
Dist. A.	3			2				5	6	83
Dist. B.	3							3	3	100
CSC A-1	3			2		2		7	9	78
CSC A-2	3			3		3		9	9	100
CSC A-3	2			3		2		7	9	78
CSC B-1	2			1		2		5	9	56
CSC B-2	3			1		1		5	9	56
CSC B-3	3			2				5	6	83
CSC B-4	2			3		3		8	9	89
CG A-1	2	2	3	2			2	11	15	73
CG A-2	3	2	2					7	9	78
CG A-3	2	3	3					8	9	89
CG B-1	3	3	3			2	3	14	15	93
CG B-2		3	3	2				8	9	89
CG B-3	2	3	2			3		10	12	83
CG B-4	2	3	3	3			1	12	15	80
Villagers A-1	3	3	3	2			3	14	15	93
Villagers A-2										
Villagers A-3	2	3		2				7	9	78
Villagers B-1				2			3	5	6	83
Villagers B-2							2	2	3	67
Villagers B-3	2		3	2	3			10	12	83
Villagers B-4		3	1	2	3		2	11	15	73
Total: N	48	28	26	34	6	18	16	176	216	81
Total: D	57	30	30	48	6	24	21	216		
Total: %	84	93	87	71	100	75	76	81		

1=low, 2=medium, 3=high; CG=Community Guide, Conf=confidence, Contr=contribution, Cred=credit, CSC=Commune Steering Committee, D=denominator, Info=information equity, N=numerator, Resp=responsibility, Sust=sustain

Table 5: Strength of Community Capacity Sub-Domain by Unit, Showing Where Capacity is Attributed to the Project (shading)*

Unit	Sub-Domain							Total		
	Conf	Cred	Resp	Sust.	Contr	Info	Trust	N	D	%
Province	3							3	3	100
Dist. A.	3			2				5	6	83
Dist. B.	3							3	3	100
CSC A-1	3			2		2		7	9	78
CSC A-2	3			3		3		9	9	100
CSC A-3	2			3		2		7	9	78
CSC B-1	2			1		2		5	9	56
CSC B-2	3			1		1		5	9	56
CSC B-3	3			2				5	6	83
CSC B-4	2			3		3		8	9	89
CG A-1	2	2	3	2			2	11	15	73
CG A-2	3	2	2					7	9	78
CG A-3	2	3	3					8	9	89
CG B-1	3	3	3			2	3	14	15	93
CG B-2		3	3	2				8	9	89
CG B-3	2	3	2			3		10	12	83
CG B-4	2	3	3	3			1	12	15	80
Villagers A-1	3	3	3	2			3	14	15	93
Villagers A-2										
Villagers A-3	2	3		2				7	9	78
Villagers B-1				2			3	5	6	83
Villagers B-2							2	2	3	67
Villagers B-3	2		3	2	3			10	12	83
Villagers B-4		3	1	2	3		2	11	15	73
Total: N	48	28	26	34	6	18	16	176	216	81
Total: D	57	30	30	48	6	24	21	216		
Total: %	84	93	87	71	100	75	76	81		

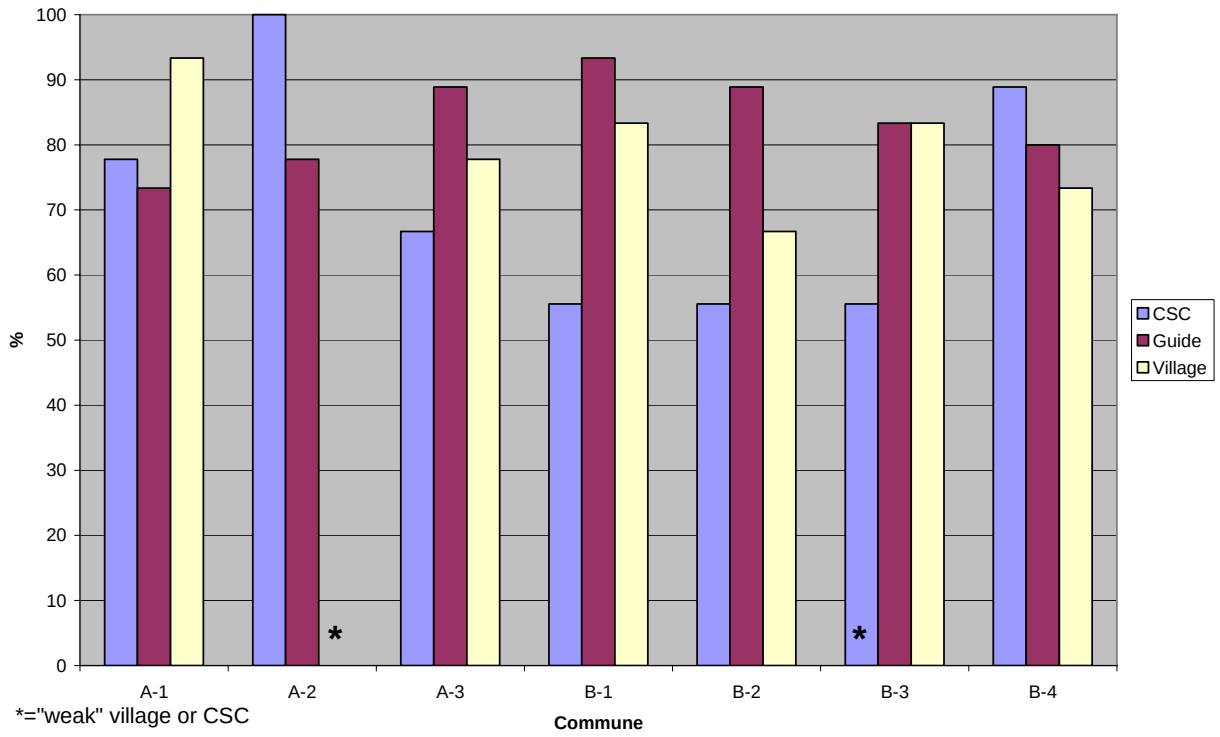
1=low, 2=medium, 3=high; CG=Community Guide, Conf=confidence, Contr=contribution, Cred=credit, CSC=Commune Steering Committee, D=denominator, Info=information equity, N=numerator, Resp=responsibility, Sust=sustain

Table 6: Strength of "Sense of Ownership" by Sub-Domain, Showing Where Capacity is Attributed to the Project (shading)*

Unit	Sub-Domain				Total		
	Cred	Resp	Sust.	Contr	N	D	%
Province							
Dist. A.			2		2	3	67
Dist. B.							
CSC A-1			2		2	3	67
CSC A-2			3		3	3	100
CSC A-3			3		3	3	100
CSC B-1			1		1	3	33
CSC B-2			1		1	3	33
CSC B-3			2		2	3	67
CSC B-4			3		3	3	100
CG A-1	2	3	2		7	9	78
CG A-2	2	2			4	6	67
CG A-3	3	3			6	6	100
CG B-1	3	3			6	6	100
CG B-2	3	3	2		8	9	89
CG B-3	3	2			5	6	83
CG B-4	3	3	3		9	9	100
Villagers A-1	3	3	2		8	9	89
Villagers A-2							
Villagers A-3	3		2		5	6	83
Villagers B-1			2		2	3	67
Villagers B-2							
Villagers B-3		3	2	3	8	9	89
Villagers B-4	3	1	2	3	9	12	75
Total: N	28	26	34	6	94	114	82
Total: D	30	30	48	6	114		
Total: %	93	87	71	100	82		

1=low, 2=medium, 3=high; CG=Community Guide, Conf=confidence, Contr=contribution, Cred=credit, CSC=Commune Steering Committee, D=denominator, Info=information equity, N=numerator, Resp=responsibility, Sust=sustain

Figure 1: Aggregate Community Capacity by Level



*="weak" village or CSC

Figure 2: Community Capacity Among Community Guides

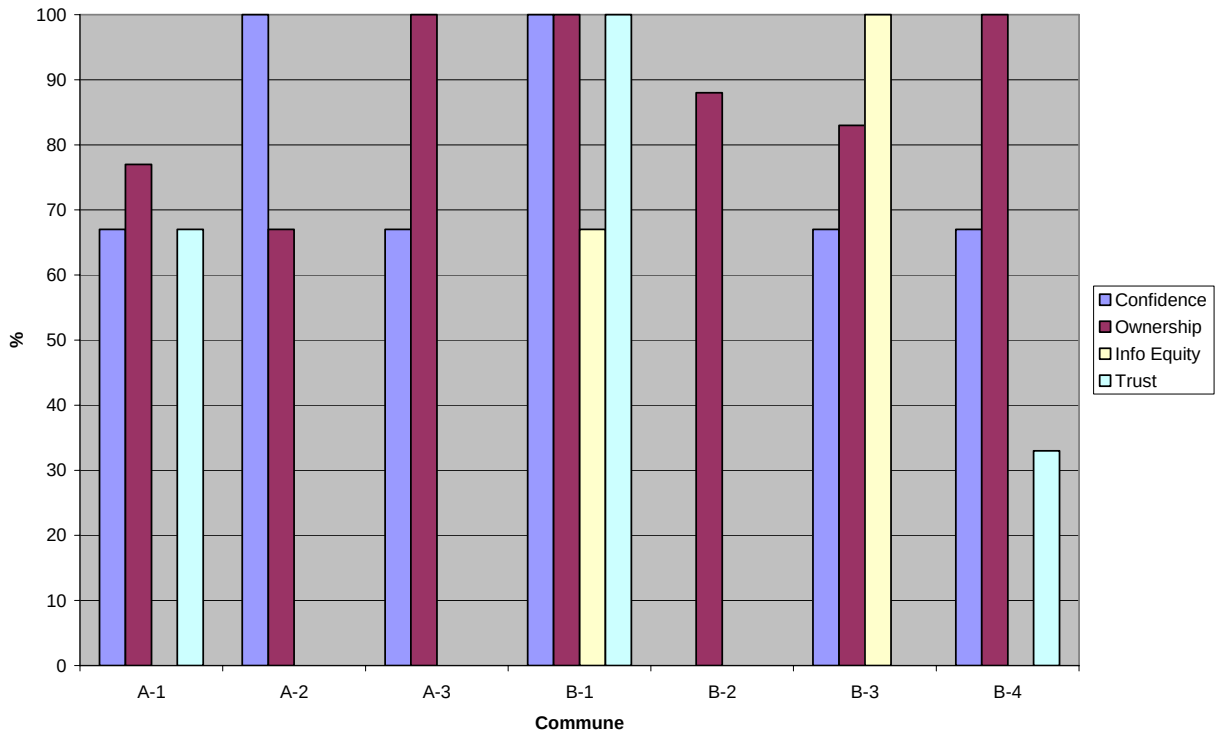
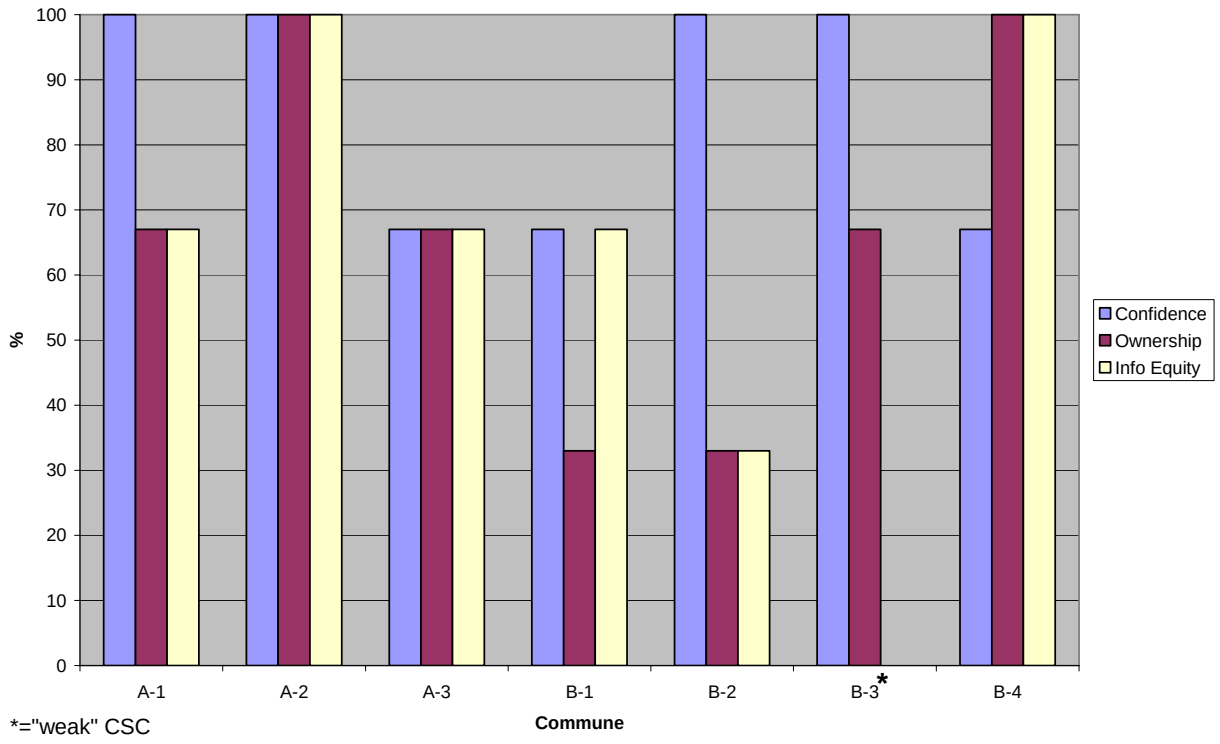


Figure 3: Community Capacity Among Commune Steering Committees



*="weak" CSC

ANNEX

APPROACH TO MEASURING DOMAINS AND SUB-DOMAINS: DRAFT 1.0 (JULY 1, 2007)

Sources: Figueroa et al., Lusaka Partners' Learning Forum, and Marsh (Community History)

OUTCOMES

1. **Understanding of community history**
    a. **Social, political, and economic factors: past and present:** Formative work with Project staff will first identify "macro" (i.e., national, etc.) and local factors within a specified time-frame (perhaps 5 years) before interviewing other community members.
    b. **Types of organizations, groups, and sectors:** Formative work with Project staff will first identify "macro" (i.e., national, etc.) and local groups within a specified time-frame (perhaps 5 years) before interviewing other community members.
    c. **Awareness of important social, political, and economic changes that have occurred both recently or more distantly:** Informed about the main "macro" and local factors or changes, the researcher asks informants to list them first without prompting, then with prompting. Finally, the researcher asks for a brief explanation about why each identified factor or change is important (see Table 5 below).
    d. **Awareness of the type of organizations, community groups, and community sectors that are present:** Informed about the main "macro" and local groups, the researcher asks informants to list them first without prompting, then with prompting. Finally, the researcher asks for a brief explanation about why each identified group is important (see Table 5elow).

Table 1A: Illustrative Data Collection Tool for Community History: Social Changes

Item	Awareness		Explanation
	Unprompted	Prompted	
"Macro" change 1			
"Macro" change 2			
"Macro" change X, etc.			
Local change 1			
Local change 2			
Local change X, etc.			

Table 1B: Illustrative Data Collection Tool for Community History: Groups

Item	Awareness		Explanation
	Unprompted	Prompted	
"Macro" group 1			
"Macro" group 2			
"Macro" group X, etc.			
Local group 1			
Local group 2			
Local group X, etc.			

2. **Organizational structure, social and inter-organizational networks:** The research will focus on the community's organizing around food insecurity and child nutrition. We will use the "Community Dialogue and Collective Action Matrix" to analyze this in-depth. The following questions measure respondents' opinions about other groups and relations between them.

    "Earlier you mentioned the following local groups (X, Y, Z, etc.): I would like to ask you a bit more about each one. Let's start with Group X. Please tell me how you react to the following statements: strongly agree, somewhat agree, unsure, somewhat disagree, strongly disagree" (StA, SoA, U, SoD, StD).

    a. **Organizational structures, procedures, and authority**
        i. Group X works through transparent procedures. (StA, SoA, U, SoD, StD)

ii. I can challenge decisions by Group X. (StA, SoA, U, SoD, StD)
iii. Group X can change a decision after a challenge. (StA, SoA, U, SoD, StD)

b. **Organizational effectiveness and sustainability:**
   i. Group X sets goals. (StA, SoA, U, SoD, StD)
   ii. Group X accomplishes its goals. (StA, SoA, U, SoD, StD)
   iii. Group X will function here 5 years from now. (StA, SoA, U, SoD, StD)

c. **Reciprocal links throughout the overall network**
   i. Group X is linked to one or more other groups. (StA, SoA, U, SoD, StD)

d. **Frequent supportive interaction**
   i. Group X is supported by one or more other groups. (StA, SoA, U, SoD, StD)

e. **Ability to form associations/partnership building**
   i. Our community can make formal partnerships between groups. (StA, SoA, U, SoD, StD)
   ii. Our community has made formal partnerships between groups. (StA, SoA, U, SoD, StD)

3. Participation (in the Project)

a. **Participant base:**
   i. What is the population of your community?
   ii. What is the size of the following groups? (male vs. female, "rich" vs. "poor," other marginalized groups X, Y, and Z, etc.)
   iii. Is there a map of the community showing vulnerable groups? Y/N

b. **Access to participation/diverse network to enable different views/population segments**
   i. Marginalized group X participates well in the Project. (StA, SoA, U, SoD, StD)
   ii. Marginalized group X expresses views in the Project. (StA, SoA, U, SoD, StD)
   iii. Marginalized group X has convenient opportunities to provide input in the Project. (StA, SoA, U, SoD, StD)
   iv. Marginalized group X has safe opportunities to meet to express their most critical needs in the Project. (StA, SoA, U, SoD, StD)

c. **Benefits override costs of participation**
   i. Marginalized group X benefits through participation in the Project. (StA, SoA, U, SoD, StD)
      1. Explain
   ii. Marginalized group X runs a risk through participation in the Project. (StA, SoA, U, SoD, StD)
      1. Explain

d. Extent of participation (Covered in "b")

e. Levels of participation (Covered in the "Community Dialogue and Collective Action Matrix").
   i. Analyzing, defining problem
   ii. Planning and getting organized
   iii. Solving problem: mobilizing resources, implementing, etc.

f. Exercise of power (community power)
   i. **Create or resist change, turf, interests, experiences**
      1. Marginalized group X can create change through participation in the Project. (StA, SoA, U, SoD, StD)
      2. Marginalized group X can resist change through participation in the Project. (StA, SoA, U, SoD, StD)
   ii. Power with other (not control over them)

4. Leadership

a. Extent of leadership (e.g. includes formal and informal leaders)
   i. Who are the main leaders in this community (probe formal and informal leadership)?
   ii. Were people given the opportunity to play a leadership role in the Project?
      1. Who are the leaders in this community with respect to the Project?
   iii. Have new leaders emerged in the Project?

1. Who?
2. How?

b. **Equity and diversity:** Complete Table 2 to characterize new leaders in the Project

Table 2: Characteristics of New Project Leaders

Characteristic	Leader 1	Leader 2	Leader 3	Leader 4
Gender				
Age				
Economic Status				
Etc.				

c. Flexibility

i. How are leaders usually selected in the community? (Specify likely choices)
   1. How were leaders selected for this Project?
ii. Who in the community chose or elected leaders for the Project (the whole community, other people or groups within the community, other people or groups outside the community, chosen by the government, chosen by external agent)?
iii. From the total number of leaders in the Project in this community, how many were elected by the whole community (all of them … none)?
iv. Does the leadership of the Project change regularly, such as by annual elections of leaders?
v. Anyone involved in the Project could be a leader if they wanted to. (StA, SoA, U, SoD, StD)

d. **Ability/skills to establish and maintain dialogue** (Also, see "Community Dialogue and Collective Action Matrix.")

i. Complete Table 3

Table 3: Leadership Competency (rate: high, medium, low)

Step	Leader 1	Leader 2	Leader 3	Leader 4
Problem identification				
Initiating dialogue around problem				
Encouraging participation				
Promoting inquiring to clarify perceptions				
Facilitate input from disadvantaged				
Setting goals or objectives				
Developing plan				
Assigning tasks fairly				
Assigning benefits fairly				
Mobilizing resources				
Monitoring				

ii. Our community leaders in this Project accept conflict or dissatisfaction as "normal" (not "bad"). (StA, SoA, U, SoD, StD)
iii. Our community leaders in this Project use conflict or dissatisfaction as a stimulus for change (not "something to be controlled"). (StA, SoA, U, SoD, StD)

e. Vision and innovation

i. Our community leaders in this Project have clear goals or directions. (StA, SoA, U, SoD, StD)
ii. Our community leaders in this Project have innovative solutions to food insecurity and child malnutrition. (StA, SoA, U, SoD, StD)
iii. Our community leaders in this Project have enthusiasm for strengthening community aspirations for the Project. (StA, SoA, U, SoD, StD)

f. **Trustworthiness and popularity:** Think about (leader's name) and recall things he/she says and does in the Project. I would like you to answer the following questions: very much (4), somewhat

(3), not very much (2), or not at all (1).

Table 4: Trustworthiness and Popularity of New Project Leaders

Characteristic	Leader 1	Leader 2	Leader 3	Leader 4
How credible is (leader's name) on things he says or promises?				
Does (leader's name) keep the promises he/she makes?				
How trustworthy is (leader's name) on managing the community resources?				
How courageous is (leader's name) in standing up for community interests?				
How courageous is (leader's name) in confronting conflicts constructively?				
How sensitive is (leader's name) to the needs of people and their feelings?				
How accessible is (leader's name) to community members?				
How respectful is (leader's name) of others' opinions?				
How much do you like (leaders' name)?				

g. Exercise of power:
h. Power with other (not control over them)

5. Social cohesion

a. Sense of community/sense of belonging:
i. I feel that I belong to this community. (StA, SoA, U, SoD, StD)
ii. I see myself as part of this community. (StA, SoA, U, SoD, StD)
iii. I feel that I am a member of this community. (StA, SoA, U, SoD, StD)
iv. I would rather live in a different community. (StA, SoA, U, SoD, StD)
v. I would rather live in this community than any others I know of. (StA, SoA, U, SoD, StD)

b. Sense of commitment
i. I would like to move out of this community as soon as possible. (StA, SoA, U, SoD, StD)
ii. People in this community are all striving for the same goals. (StA, SoA, U, SoD, StD)
iii. Everyone here wants to pursue their own goals rather than working for the good of the community. (StA, SoA, U, SoD, StD)

c. Spiritual/cultural capital

d. Community values (clearly defined norms, standards, attributes)
i. People in this community have shared values. (StA, SoA, U, SoD, StD)
ii. People in this community are willing to tolerate the differences among each other. (StA, SoA, U, SoD, StD)

e. Common vision/goal consensus
i. People in this community have a sense of common purpose or vision. (StA, SoA, U, SoD, StD)

f. Trust
i. People in this community trust one another. (StA, SoA, U, SoD, StD)
ii. Most people in this community like one another. (StA, SoA, U, SoD, StD)

g. Reciprocity
i. People in this community behave in an opportunistic way and disregard their obligations to others. (StA, SoA, U, SoD, StD)
ii. People in this community fulfill their obligations if they can be punished for not doing so. (StA, SoA, U, SoD, StD)
iii. People in this community fulfill their obligations with others because, if they do not and others find out, the people around them will know that they are not trustworthy. (StA, SoA, U, SoD, StD)
iv. People in this community in general fulfill their obligations to be sure that others will do so for them. (StA, SoA, U, SoD, StD)

v. People in this community try to fulfill their obligations to others. (StA, SoA, U, SoD, StD)

h. Network cohesion

i. I would like to work with the same people in the next community project. (StA, SoA, U, SoD, StD)

i. Feelings of morale

i. I am content to be part of this community. (StA, SoA, U, SoD, StD)
ii. I am happy to be part of this community. (StA, SoA, U, SoD, StD)
iii. This community is one of the best anywhere. (StA, SoA, U, SoD, StD)
iv. I want to work with the same people on our next community project. (StA, SoA, U, SoD, StD)
v. I would rather work with different people on our next community project. (StA, SoA, U, SoD, StD)
vi. Most of the people in this Project like one another. (StA, SoA, U, SoD, StD)
vii. Most of the people here are willing to share responsibility for making our community a better place to live. (StA, SoA, U, SoD, StD)
viii. There are too many people in this community who think they should share in the benefits without sharing the work. (StA, SoA, U, SoD, StD)

6. Sense of ownership

a. Importance of issue or program to participants

i. The problems that the Project is trying to improve are some of the most important in my community. (StA, SoA, U, SoD, StD)
ii. The community should be doing more to improve these problems. (StA, SoA, U, SoD, StD)

b. Sense of responsibility for program/activities

i. I feel very responsible for helping to improve the problem that the Project is working on. (StA, SoA, U, SoD, StD)
ii. Who is *responsible* for solving this problem? (outsiders, some community members, the affected people, or the entire community)
iii. Who is *responsible* for making this project successful? (outsiders, some community members, the affected/beneficiaries or the entire community)

c. Contribution to program/activities

i. How much would you say the community has contributed to the Project? (very much, slightly, not much, not at all)
    1. If not much or not at all, has anything/anyone prevented the community from making more contributions to the Project?
ii. How much would you say you have contributed to the Project? (very much, slightly, not much, not at all)
    1. If not much or not at all, has anything/anyone prevented you from making more contributions to the Project?

d. Benefit from program/activities

i. How much did you (the community) *benefit* from this Project: very much, slightly, not much, not at all?
ii. Who in the community benefits from the Project?
iii. Why do people participate in the Project? (for monetary incentive, voluntarily/feels program is important, coercion, asked by local community leaders to participate, for the sake of curiosity)
iv. Why do people not participate in the Project? (not aware about the issue/program, did not know how to participate, not allowed to participate, did not see any benefits from participation)
v. Did <u>you</u> participate in the Project?
    1. Why or why not?

e. Participants' sense of ownership of either credit or blame of the program outcome

i. Who do you think deserves the credit or blame for making this Project successful or a failure? (outsiders, some community members, the affected/beneficiaries, the whole community, others)

f. Personal identification with program/activities

i. Whose problem is food insecurity and child malnutrition? (outsiders, some community members, the affected/beneficiaries, the whole community, others)
ii. Whose Project is this? (outsiders, some community members, the affected/beneficiaries, the whole community, others)

7. Collective efficacy

a. Perceived efficacy to take action as a group

i. People in this community are always able to discuss problems that affect everyone. (StA, SoA, U, SoD, StD)
ii. People in this community usually have trouble dealing with conflict. (StA, SoA, U, SoD, StD)
iii. Whenever our community undertakes a project together, we know that we will all work hard until it is accomplished. (StA, SoA, U, SoD, StD)
iv. Whenever our leaders ask us to work on projects together, almost everyone is willing to join in and do their share of the work. (StA, SoA, U, SoD, StD)
v. Our community is prepared to respond to emergencies. (StA, SoA, U, SoD, StD)
vi. Our community can influence the health issues that affect it. (StA, SoA, U, SoD, StD)

b. Perceived capability of other community members

i. The community members I work with have the ability to tackle food insecurity and child malnutrition. (StA, SoA, U, SoD, StD)
ii. People in this community have poor skills and resources compared to other communities that I know of. (StA, SoA, U, SoD, StD)
iii. I have plenty of confidence that people in this community can perform the tasks that are assigned to them. (StA, SoA, U, SoD, StD)
iv. The members of this community have excellent skills to tackle food insecurity and child malnutrition. (StA, SoA, U, SoD, StD)
v. This community is not effective in tackling the problems that we face. (StA, SoA, U, SoD, StD)
vi. Other community members can perform tasks assigned to them. (StA, SoA, U, SoD, StD)

c. Perceived efficacy to solve problems as a group

i. Whenever a community problem arises, I have little confidence that we will be able to solve it. (StA, SoA, U, SoD, StD)
ii. If a problem arises that people cannot solve by themselves, the community as a whole will be able to solve it. (StA, SoA, U, SoD, StD)
iii. Our community is capable of using innovative approaches to deal with food insecurity and child malnutrition even when faced with setbacks. (StA, SoA, U, SoD, StD)
iv. As members of this community, we are able to tackle the most difficult situations (or crises) because we are all committed to the same collective goals. (StA, SoA, U, SoD, StD)
v. Our community can come up with creative ways to improve the health status of the community, even without outside support. (StA, SoA, U, SoD, StD)
vi. Our community has internal knowledge and skills to implement the plan to address the issue at hand. (StA, SoA, U, SoD, StD)
vii. Our community can sustain the Project activities after external support is withdrawn. (StA, SoA, U, SoD, StD)
viii. Our community can mobilize resources to change situations that affect the members. (StA, SoA, U, SoD, StD)
ix. Our community can carry out different health initiatives in a cooperative manner even when difficulties arise. (StA, SoA, U, SoD, StD)
x. Our community can influence the health challenges that affect it because we are a cohesive ("stick together") community. (StA, SoA, U, SoD, StD)

xi. Our community can influence the health challenges that affect it because we are a competent community. (StA, SoA, U, SoD, StD)
xii. Our community can deal effectively with emergencies because we can draw on social networks in our community. (StA, SoA, U, SoD, StD)
xiii. To what extent does this community have the knowledge and skills to implement a plan to address the issue of _____? (0=Not at all: members do not have the knowledge and skills and cannot implement the plan. 1=Somewhat: members may have some knowledge and skills, but cannot use them collectively to solve the problem. 2=Pretty well: members have the knowledge and skills, and steps are being taken to use them. 3=Very well: members have all the knowledge and skills, and the community can implement the plan.)
xiv. Does your community feel more, the same or less confidence, as you did five years ago in tackling food insecurity and child malnutrition? (0-Less confident. 1-Same confidence. 2-More confident.)
xv. Despite a setback, our community will succeed in dealing with food insecurity and child malnutrition. (StA, SoA, U, SoD, StD)
xvi. Our community has the ability to tackle food insecurity and child malnutrition. (StA, SoA, U, SoD, StD)
xvii. Our community has little trouble dealing with conflict. (StA, SoA, U, SoD, StD)

d. Perception that group's action leads to results

i. Our community can mobilize resources to improve situations that affect the members. (StA, SoA, U, SoD, StD)

8. Resource mobilization

a. Accessing resources

i. I am satisfied with our community leaders' knowledge of good sources of resources for this Project. (StA, SoA, U, SoD, StD)
ii. I am satisfied in our community leaders' performance in mobilizing resources for this Project. (StA, SoA, U, SoD, StD)
iii. How many proposals (or petitions, ear-marks, requests, etc.) were submitted during this Project?
    1. How many were successful?
    2. What was their value?
iv. What resources were available to the community during this Project?
    1. What was the source of each?
    2. What was the value of each?

b. Using of internal and external resources

i. What people or groups are donating time to the Project?
    1. How much time by each person or group? (Table 5)

Table 5: Time Donations of Individuals and Groups

Person or Group	Time contribution/time period	Duration of Contribution

ii. Are other community resources supporting of parts of the Project?
    1. What resources?
    2. What percentage is this of the total Project costs?
iii. I am satisfied in the community leaders performance in sharing resources for this Project (StA, SoA, U, SoD, StD)
    1. Whose interests are served by the mobilization of resources?

9. Information equity

a. Awareness and correct knowledge of the issue or program (Table 6)

i. Percentage of community members with correct knowledge about aspects of the Project.
    1. Average level of knowledge about the Project in the community.
ii. Percentage of community members aware of community activities related to the Project -> a matrix of Project activities by awareness level among individuals or groups.
iii. Percentage of community members aware of sources for Project information.
iv. Percentage of community members aware of how to participate in Project activities.
v. Percentage of community members aware of other community programs related to Project.

Table 6: Knowledge About Key Project Facts by Group

Parameter	Total	Women	Men	Vuln Gp X	Vuln Gp Y	Etc.	
Know Aspect "X"							
Know Aspect "Y"							
Aware of Activity, etc.							

b. Enhanced free flow of information
i. Proportion of community members or groups with access to sources of information (TV, radio, newspapers, telephone, Internet, etc.)
ii. Frequency of use of local media and other information channels by community members to learn about the Project.
iii. Degree of media participation in Project.
    1. Percentage of media time/space devoted to Project.
    2. Number of media reports related to community activities or accomplishments (news releases, radio or TV interviews, etc.).
iv. Percentage of community members/groups who have discussed the Project with others in last X months.

10. Critical thinking and skills (See Community Dialogue and Collective Action Matrix – a process evaluation tool)
a. Ability to access and use information
i. Number (%) of community members trained by type of training and gender.
ii. Number (%) of community members who completed primary education by sex.
b. Comfort to listen and speak/openness between individuals
c. Problem/needs assessment
d. Problem solving
i. Number (%) of community members able to identify practical response to low use of services.
e. Decision-making
i. Number (%) of community members who have experience in decision making.
f. Activities design and development
g. Planning, organization, and implementation
i. Number (%) of community members who have helped organize a community development or health event in last 12 months.
ii. Number (%) of community planned activities implemented by sector within the specified time/period.
h. Participatory monitoring and evaluation

PROCESS: (see "Community Dialogue and Collective Action Matrix")

11. Recognition of a problem
a. Has the community recognized food insecurity and childhood malnutrition as a problem?
b. What were the catalysts?
c. Which groups and people were involved in recognizing the problem?

12. **Identification and Involvement of Leaders and Stakeholders**
    a. How were leaders (individuals or groups) on the Project elected?
    b. Proportion of different interest groups or factions in the community represented in the leadership (individual or group)?
    c. Number of individual leaders or groups working on the Project?
13. **Clarification of perceptions**
    a. Mechanisms for clarifying perceptions that involve the whole community?
    b. Proportion of most affected groups in the community effectively participating in discussions regarding food insecurity and childhood malnutrition?
    c. Level of agreement regarding the root causes of and/or solution to food insecurity and childhood malnutrition?
14. **Expression of individual and shared interests**
    a. Was anything done to identify all the beneficiaries, and include them in the planning process?
    b. What are the mechanisms being used for all community members to communicate their interests at the different structural levels in the community?
    c. Proportion of relevant groups expressing their needs or interests with regard to food insecurity and childhood malnutrition?
    d. Was the design of the project changed to increase the number of beneficiaries?
    e. Were there any relevant groups (those most affected) in the community that refused to participate?
15. **Handling conflict and dissatisfaction**
    a. Was there conflict/dissatisfaction?
    b. How were the different conflicts arising at this stage resolved (document the actual process)?
    c. What other resources (leaders, stakeholders, influential persons or evidenced) has the community sought to deal with the conflict?
16. **Developing a common vision**
    a. What has been the representation of community members and affected groups in defining the vision?
    b. How has the community articulated its "dream" (generally, this takes the form of a statement that includes the ideal [feasible] scenario of where the community wants to be with respect to the problem/issue)?
17. **Assessment of current status**
    a. Existing mechanism for information gathering about the extent of the problem in the community and the changes over time. This tracking mechanism should allow the community to answer questions such as, How many children in the community had X (diarrhea, weight check, etc.) last week? How are these events similar or different from previous years?
    b. Resources, inside and outside of the community, being used to track changes in the number of cases and other qualifications related to food insecurity and childhood malnutrition?
18. **Planning for action**
    e. **Setting objectives**
        i. How were the goals/objectives set up (participatory goal setting, in principle, would secure wide support and action)?
        ii. What are the goals set up by the community to deal with the problem (generally, a list of goals should exist, that describes what the community wants to see accomplished at the end of the program)?
        iii. Level of agreement of leaders/group members on the goals/objectives set up?
    f. **Consensus building**
        i. Has any conflict arisen in reaching consensus?
        ii. How is the community dealing with conflict on actions and how is conflict being resolved?
        iii. How was the consensus reached on the final action plan?
        iv. Who participated in reaching consensus?
        v. Does a document exist that specifies what the community action plan is?
    g. **Development of an action plan**
        i. Does a written community action plan exist?
        ii. Verification of the following data in the action plan:
            1. Who is responsible for each activity?

2. What resources are needed (people and other material resources)?
3. When is the activity going to be implemented?
4. Where will the activity be implemented?
5. How will the activity be monitored?
6. What is the expected result?

19. Implementation

h. Assignment of responsibilities

i. How were the actual responsibilities assigned (leaders assigned, volunteers, other)?
ii. Level of agreement (by leaders, community groups) with the assignment of responsibilities?
iii. Level of representation of interest groups on the assignment of responsibilities?
iv. Are there any new task forces/groups created to carry out different activities under the action plan?
v. Are leaders (individuals or groups) sharing in responsibility for implementing the action plan?

i. Types of activities implemented

20. Resource mobilization and mobilization of organizations

i. Types of resources

1. Human, physical, money, intangibles (?)
2. Internal and external

a. Magnitude of resources mobilized within and outside the community? (a listing of all organizations contacted will give evidence of the size of the network accessed by the community.)
b. Type of internal and external organizations/resources contacted (extent of networking; look for involvement of the local media)?
c. Representation of affected groups in the community in the participating resources and organizations?

ii. Accessing and sharing resources

iii. Managing resources

1. Roles and responsibilities (internal and external)
2. Self-management (highest level of participation)

iv. Monitoring

1. Who, how when?
2. Facilitators and constraints to action

a. How is the implementation being monitored?
b. Who is monitoring the implementation of activities?
c. Has each activity specified in the action plan been implemented as intended (documentation for each activity)?
d. For the activities not implemented as planned, what are the reasons for poor implementation (resource constraint, decline in interest in the community members assigned with the responsibility, other)?
e. Actions taken to cover for unsuccessful key activities.

21. Participatory evaluation

a. How is/was the evaluation conducted?
b. Who is/was participating in the evaluation?
c. How are the results being disseminated to the broader community?
d. What was learned from the process (look for intangibles)?

SAVE THE CHILDREN WORKING PAPER NO. 3

ACCEPTABILITY, FEASIBILITY, QUALITY, EFFECT, AND SUSTAINABILITY OF A "PD-PLUS" APPROACH FOR IMPROVING NEWBORN, CHILD, AND MATERNAL CARE IN QUANG TRI PROVINCE, VIETNAM

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ACRONYMS

ANC	Antenatal Care
BF	Breastfeeding
CC	Community Capacity
CDK	Clean Delivery Kit
CG	Community Guide
CHC	Commune Health Center
CM	Community Meeting
CSC	Commune Steering Committee
DS	Danger Sign
EPI	Expanded Programme for Immunizations
MOH	Ministry of Health
NERP	Nutrition Education Rehabilitation Program
PD	Positive Deviance
PDI	Positive Deviance Inquiry
SC	Save the Children

TABLE OF CONTENTS

SUMMARY

Background A positive deviance inquiry (PDI) is a formative research technique to study individuals who experience better outcomes than their neighbors with similar backgrounds. The insights from a PDI can inform behavior change strategies. Save the Children (SC) has extensive experience using PDIs to study poor Vietnamese families with well-nourished children.

SC implemented a child survival project (2002-2007) in Huong Hoa and Dakrong Districts of Quang Tri Province. We supported the Ministry of Health to deliver maternal and newborn care and infant nutrition interventions, especially targeting Pakoh and Van Kieu minority populations. We strengthened facility-based and outreach services and delivered behavior change communication, primarily in a series of 12 monthly meetings, each promoting different messages. We modified the formative PDI: (1) to apply it throughout the project instead of only at baseline and (2) to inquire about behavioral outcomes instead of health status outcomes. SC trained community health workers (Guides) to facilitate the meetings, including conducting a "new topic PDI" to study if, why, and how attendees might already be practicing a good behaviors introduced at the current meeting and a "booster PDI" to study if, why and how they might have adopted behaviors discussed at previous meetings.

We wanted to know about the effects, acceptability, feasibility, quality, and sustainability of Community Meetings with this modified PDI.

Methods We conducted several studies: (1) population-based household survey of 248 Phase 3 mothers with infants less than six months of age (July 2005); (2) household postpartum surveillance of 634 Phase 3 mothers (July 2005 to September 2006); (3) follow-up of 19 previously surveyed Phase 3 mothers who delivered again during Phase 3 (September 2006 to June 2007); (4) structured supervision of 87 Phase 3 Community Meetings (July 2005 to September 2006); and (5) population-based, project-wide household surveys of 397 and 400 mothers in all phases with infants less than 24 months of age (in December 2003 and May 2007, respectively).

Results Phase 3 mothers differed little from counterparts in other Phases in that their reported use of interventions was low at baseline – even though services had been made more available by this time. Community Guides' surveillance of postpartum mothers closely reflected the official crude birth rate (16.3 visits/1000 vs. 15.2 births/1000). Recorded maternal and newborn practices increased, sometimes dramatically, over time – even after Phase 3 project inputs ceased. Two thirds of mothers (12/19) with a subsequent child reported improved practices, largely due to increased knowledge obtained through attending Community Meetings, family support (often stimulated through their attending Community Meetings), and increased availability of services through outreach clinics. Mothers valued the non-threatening, participatory
meetings. Ethnic minority mothers, the Project target population, regularly attended meetings more commonly than their Kinh counterparts (53 vs. 33%). Attendance was strongly associated with a wide range of better practices and knowledge, including antenatal iron (odds ratio [OR]: 3.12), $\geq$ 3 antenatal care visits (OR: 1.82), receipt clean delivery kit

(OR: 3.28), immediate breastfeeding (OR: 2.11), delayed newborn bath (OR: 2.82), postnatal home visit (OR: 2.51), exclusive breastfeeding of infants < 4 or 6 months (Ors: 6.79, 3.81), among many others, all statistically significant. Mothers' attendance implied and supervision records confirmed that the quality of Community Meetings was good and increased over Phase 3, peaking at 78% of all 14 skills demonstrated according to standard. Guides' strongest facilitation skills were using pictures (94%), sharing messages (93%), and demonstrating behaviors (84%). Supervisors graded the steps of the PD inquiry somewhat less (57 and 59% for asking "why?" and asking "how? for the Booster PD, respectively; and 54 and 54%, for asking "why?" and asking "how? for the New Topic PD, respectively). We usually had only one supervisory visit per hamlet in Phase 3; and supervisors' attempts to characterize the overall quality of each hamlet's meetings failed to show an association between it and mothers' behaviors.

Discussion The acceptability, feasibility, quality, effect, and sustainability of the PD-Plus approach were often difficult to isolate from the over-arching Community Meeting strategy. The combination was acceptable, given the mothers' high levels of attendance and engagement. The PD-Plus approach itself was moderately feasible, given that half the Guides implemented it correctly. Indeed, the quality of the Guides' facilitation of the meetings in general was high. The effect of the combination was strongly positive, given the dramatic improvement in reported behavior and in demonstrated knowledge and the association between these and meeting attendance. The sustainability remains to be seen, but evidence from other sources shows sustained behavior change and the intention to sustain the meetings for review, young couples or new topics. The PD-Plus idea is programmatically complex, but worth simplifying and further testing. Meanwhile, for isolated, uninformed ethnic minorities the Community Meeting strategy, with occasional reference to real positive role-models, works.

INTRODUCTION

The international community seeks locally-available, sustainable, and effective approaches to improve health. In the 1970s programmers tested the concept that public health interventions could be designed around the uncommon, beneficial health behaviors that some community members already practiced. [xxxvi, xxxvii] This concept — known as positive deviance (PD) [xxxviii, xxxix] —was used successfully to improve the nutritional status of children in several settings in the 1990s. [xl, xli, xlii, xliii, xliv, xlv] Recently, programmers began applying a structured PD approach more broadly to improve newborn, child, adolescent, and adult health. For example, Save the Children Federation/US (SC) has used PD to improve exclusive breastfeeding in Viet Nam; [xlvi] newborn care in Pakistan; [xlvii, xlviii] pregnancy outcomes in Egypt; [xlix, l] condom use among commercial sex workers in Indonesia and Georgia; modern family planning in Guatemala; adolescent reproductive health services in the Philippines; and girl trafficking in Indonesia.

We recently summarized the approach:

> *Positive deviance is the observation that in most settings a few at-risk individuals employ uncommon, beneficial practices and consequently experience better outcomes than their neighbors who share similar risks. Programmers use the "PD approach" to enable the community to discover how these individuals thrive even under dire conditions and to craft interventions to spread their good practices more widely.* [li]

SC has extensive experience with PD in Vietnam. In the early 1990s, SC's Vietnam Country Office successfully adapted, tested and scaled up a PD-informed approach to reduce childhood malnutrition. [lii, liii] Re-evaluation confirmed sustained anthropometric and behavioral effects that were transferred to younger siblings born after the project had ceased. [liv]

We therefore conducted a large, randomized, prospective trial of the PD approach in twelve communes in northern Viet Nam. [lv, lvi, lvii, lviii, lix, lx, lxi] SC conducted monthly measurements on 240 children (120 in the intervention and non-intervention communes) for six months with a re-survey at 12 months. Compared to children in randomly selected non-intervention communes, younger more malnourished intervention children grew better,[24] ate and breastfed more often, ate larger portions, consumed more energy, [23] experienced less respiratory infection, [26] and had mothers who were more likely to confidently share new knowledge about childcare and feeding with their neighbors. [28] The improved nutritional status likely resulted from improved diet and reduced infection, despite imperfect program implementation[27] and baseline malnutrition rates lower than officially reported. Many effects, such as improved diet and decreased morbidity, occurred among all children, even those not sufficiently malnourished to attend the group learning activities, consistent with behavior change through mothers sharing new behaviors with one another.

In the late 1990s, buoyed by these successes, the SC launched a three-year Positive Deviance Initiative to test the effectiveness of the approach on other health outcomes. SC's first Saving Newborn Lives Initiative (2000-2005) supported a successful test of a modified PD approach for maternal and newborn care in Haripur, Pakistan. [lxii, lxiii] Meanwhile, SC's

Vietnam Country Office successfully pilot-tested the American College of Nurse Midwives' "Home-Based Life Saving Skills" course in two Dakrong communes in 2000-2.

Thus, the accumulated program learning from PD/nutrition (Vietnam), PD/newborn (Pakistan), and PD/theory (PD Initiative), plus the experience of minority women actively learning through community meetings (CM) (Vietnam), led to "PD-Plus." PD-Plus differs from "traditional PD" in important ways.[lxiv] There are important and interesting methodological issues in transferring from anthropometric to behavioral outcomes. In other words, the PD/nutrition or "traditional PD" model seeks to identify transferable behaviors that account for successful child growth. But PD for behavioral outcomes must identify transferable behavioral determinants that account for the PD person's positive behavior.

In addition, PD-Plus aims to permeate the approach with PD inquiries (PDI) because *experience has shown that these are so motivating*. Thus, rather than a single labor-intensive baseline PDI as used to inform a 12-day hearth session, the PD-Plus uses an abbreviated inquiry for each new topic ("new topic PDI") and for reviewing old topics or whenever a new adopter is identified ("booster PDI") in 2-hour monthly active learning meetings. Community implementers aim to capitalize on existing examples and especially new adopters.

A final difference is the increased emphasis on the quality of the PDIs. We knew that PDIs would be challenging, given the abstract nature of identifying determinants of behavior, especially among populations that generally do not contemplate such things. Thus, we intended to track and support PDI quality.

METHODS

Programmatic Context

The five-year CS-18 Project (2002-7) aimed to improve child health and nutritional status of 80,000 minority people in Huong Hoa and Dakrong Districts in Quang Tri Province in Central Vietnam through the increased use of life-saving health interventions, both behaviors and services. The interventions were maternal tetanus toxoid; antenatal iron; clean delivery; delivery by trained attendant; essential newborn care (immediate warming and breast feeding); postpartum maternal vitamin A; exclusive breast-feeding; appropriate complementary feeding; and recognition and care-seeking for maternal, newborn, and childhood danger signs. The Project delivered these interventions through mobilizing demand for evidence-based healthy practices for mothers, newborns, and children and improving the availability and quality of services. The principal strategies were strengthening Ministry of Health (MOH) outreach and facility-based antenatal care, delivery and growth monitoring services; training Community Guides (CGs) to impart healthy behaviors through interactive mothers' groups (including monthly meetings covering a series of 14 topics, Breastfeeding Support Groups and drama competitions); and capacity building of MOH and community partners at provincial, district, commune, and village levels. We staggered implementation (Phases 1-4), commencing a 12 to 15 month cycle each year in about a quarter (8-11) of all 36 communes in both districts. Having consolidated lessons learned from Phases 1 and 2, we generally restricted this evaluation to Phase 3.

Communes selected three to four CGs per hamlet (988 CGs in 296 hamlets in both districts) mainly from existing Hamlet Health Workers, Population Motivators, and Women's Union Members. We conducted three 4-day trainings to cover the he technical content of the 14 topics (Table 2) for the CMs and the facilitation skills to conduct the meetings. We developed a video of a "mock" CM to demonstrate the facilitation skills to conduct a successful meeting, including the PD approach (Table 3). We used "informal competency-based training," periodically checking the understanding of groups of trainees, but not rigorously assessing skills at the individual trainee level. We also trained CGs to conduct household visits about one month postpartum, where in addition to assessing progress of mother and infant, they completed a checklist on reported use of promoted maternal and newborn interventions. The Project trained CGs in many other tasks, such as conducting monthly Nutrition Education Rehabilitation Programs (a "hearth" strategy), assisting at every other month MOH growth monitoring sessions, facilitating Breastfeeding Support Groups, and organizing drama competitions. We only detail those tasks relating to the evaluation of the PD-Plus approach in meetings.

The Project supported Commune and District Health Staff to supervise CGs about every month. Supervisors observed CMs, provided feedback, solved problems, and completed a supervision checklist.

Evaluation

Setting Phase 3 communes included 10 communes (5 predominantly Van Kieu, 3 predominantly Kinh, and 2 mixed) in 90 hamlets (Table 4). Phase 3 (May 2005 to April 2006) commenced CMs in July 2005.

Data Collection Methods We used a variety of data collection methods and study designs (Table 5), including externally collected data and internal project data: (1) Trained, supervised external data collectors conducted a population-based, household survey of 248 mothers of children less than six months of age from 61 randomly selected hamlets (questionnaire in Annex 1). (2) Community Guides conducted postpartum visits as part of the project protocol, completing a closed-ended questionnaire (Annex 2). (3) District trainers followed up 19 mothers who experienced 2 births, one before and one during the project. Among the 248 mothers who participated in the above mentioned household survey, we found 19 mothers who became pregnant again. We interviewed them with a close-ended quantitative questionnaire and an in-depth interview guide in Annex 3. (4) District trainers supervised CMs, using check-lists to assess aspects of the quality of the meetings (Annex 4). (5) Trained, supervised external data collectors conducted a population-based endline household survey of 397 household of all phases, in which we measured reported attendance at CM, as well as other behaviors (Annex 5).

Variables We measured effect through individual's reported changes in use of interventions, as measured by comparing the follow-up (n=19) or the postpartum surveillance (n=634) to the baseline household survey (n=248), supplemented by mothers' explanations (n=19) for the change or lack of change. We measured acceptability through actual attendance and active participation in CMs through supervision form (n=87), through reported attendance recorded on endline household survey (n=397 of ALL phases), and through qualitative findings in the follow-up study (n=19). We measured the quality of CM by observing Community Guides' use of facilitation skills (using pictures, demonstrating behavior, discussing constraints for adopting new behavior, using role-play and coaching to practice new behavior, using bouncing question) through the supervision form (n=87). We measured the feasibility of the PD-Plus approach by similarly observing Community Guides' use of booster PDI "why?" probe, booster PDI "how?" probe, new topic PDI "why?" probe, and new topic PDI "how?" probe – again through the supervision form (n=87). We measured sustainability by comparing indicators of the quality of CM during intensive vs. post-intensive Phase 3 and by comparing individuals' reported practices, stratified by phase in the endline household survey.

Analytic Approach Each section has its analytic approach. *Phase 3 Baseline:* We compared the Phase 3 mothers to mothers from all four phases in other Project household surveys, at baseline (2003) and at endline (2007) to assess how far, if at all, Phase 3 mothers had progressed from Project "baseline" values, even though they had not yet had direct Project inputs. *Phase 3 Baseline vs. Surveillance:* We compared reported practices obtained through postpartum surveillance data obtained within one month of delivery to those obtained at baseline. We studied trends over time and looked for relationships between levels of reported practices and the sequence of topics introduced in CMs. *Second Births to Phase 3 Mothers:* We compared reported practices for the past and recent pregnancy and delivery and determinants of the recent practices. We grouped the determinants by four types of behavior: use of facility-based services, use of outreach services, family household practices

and personal household practices. We also scored each respondent, awarding +1, 0 or -1 for each of her reported changes in knowledge or behavior. *Community Meeting Attendance:* We characterized meeting size from supervision records and semi-quantified individual's attendance: regular, irregular and none, ultimately combining the latter two groups. We then characterized attendees. *Attendance vs. Reported Behavior:* We calculated multivariate analysis two ways. We calculated prevalence ratios for reported practices, stratified by attendance (regular vs. irregular or non-attendance) and by ethnicity (Kinh vs. minority) since the CM strategy targeted minorities. We also calculated adjusted Odds Ratios for reported practice by regular vs. irregular or non-attendance using logistic regression (see below). *Quality of Community Meeting:* We analyzed CM quality examining the prevalence of key facilitation skills and participation over time, noting the periods during and after intense Project inputs. *Quality of Community Meeting vs. Reported Behavior:* We calculated prevalence ratios of outcomes, stratified by supervisors' assessments of CM quality (good vs. not good) and the adjusted Odds Ratios (see below) of associations between outcome and good quality CM.

We analyzed household survey data with SPSS. We used the Chi-square test for bivariate analysis, commonly stratifying by ethnicity, an important confounder. We used binary logistic regression for multivariate analysis comparing log likelihood and using the Wald significance test for confounding factors, including ethnicity, schooling, occupation of mothers and their husbands, and the number of living children, which we placed in the regression models.

Ethics We obtained informed consent at commune, hamlet and individual levels for all external studies (baseline Phase 3 and endline Phase 1-4 household surveys and follow-up study). Data gatherers explained to potential informants that all information would remain anonymous and that potential informants could refuse to participate in part of or the entire interview without prejudice. Supervisors did not obtain permission to observe CMs as this was a routine part of the project. Community Guides only obtained informal, "courtesy permission" to conduct postpartum visits as these, too, were part of the project.

RESULTS

Phase 3 Baseline

The Phase 3 baseline sample (2005) was similar demographically to both the baseline (2003) and the endline (2007) surveys for the whole project, i.e., for all four Phases (Table 6), in terms of: maternal age, Kinh ethnicity, lack of schooling, and occupation as well as number of living children. Phase 3 children were younger by design (44.0% 0-2.9 months and 56.0% 3-5.9 months).

On the other hand, Phase 3 mothers' reported practices in 2005 were more similar to the project baseline (2003) than to project endline (2007) for: antenatal care, use of iron, delivery at health facility, delivery by trained attendant, receipt of clean delivery kit (for those planning on home delivery), clean delivery, immediate breastfeeding, and maternal vitamin A supplementation (Table 7). This is not surprising since CMs, the principal behavior change strategy, did not commence until the month of the survey (July 2005). Indeed, only a third (31.5% [78/248]) of mothers had attended a single meeting, and none had attended more than one, when surveyed. All of these 78 first attendees found the first meeting helpful,

mostly because of obtaining knowledge about child care (91% [71/78]), but some because of having a chance to talk to one another (7.7% [6/78]).

Perhaps a bit surprising is the divergence of some 2005 findings from those of 2003, specifically: TT2 (54.0 vs. 86.6%, respectively) and use of clean delivery kit if received (32.3 vs. 91.6%, respectively). On the other hand, some 2005 indicators were better than those of 2003, for example: delaying newborn bath (69.4 vs. 42.4%, respectively), knowledge of 2+ newborn danger signs (39.5 vs. 22.4 or 28.8, respectively), and knowledge of 3+ newborn danger signs (29.0 vs. 5.8 or 9.3%, respectively). Part of the explanation for the higher values in 2005 for danger sign knowledge was the lumping of all newborn danger signs into a single category; whereas, in 2003 (and 2007) we divided them between signs for the immediate newborn period and for the first 7 days of life, thereby requiring more precise understanding.

Phase 3 Postpartum Surveillance vs. Phase 3 Baseline

The Community Guides' documented 634 postpartum surveillance visits within 28 days of birth (Table 8). They averaged 134 visits (range 121-148) per quarter during the Phase 3 implementation (May '05-April '06), equivalent to 16.3 visits per 1000 total population which compares favorably with the estimated provincial birth rate (15.2) from the 2006 Annual Report of Quang Tri Health Service. The visits in the quarter after Phase 3 ceased were about 25% less (98 vs. 134).

The Community Guides used a structured form that allowed calculating 15 indicators for 11 interventions. All indicators increased, often dramatically (Table 8 and Figures 1-7). Moreover, the increase was often gradual, best seen for antenatal iron (Figure 2), TT2 (Figure 3), and exclusive breastfeeding and maternal vitamin A (Figure 4). Some indicators started high (any antenatal care) but went even higher (Figure 1), Delivery at health facility or by trained attendant showed the only modest improvement (Figure 4). Receipt of and use of clean delivery kits showed a rapid increase followed by a plateau (Figure 5). Although the number of postpartum surveillance visits decreased after the formal end of Phase 3, reported use of interventions, either services or healthy household behaviors, continued to increase in most cases. Indeed, the final quarter of data, three to six months after the official end of Phase 3, showed the highest levels for 13 of the 15 indicators.

CMs introduced topics in a standard order (Table 2). Most communities conducted meetings monthly; others conducted them fortnightly. As noted already, many indicators showed immediate improvement over baseline, regardless of their sequence as the CM topics. Thus reported use of immediate breastfeeding (topic 8) and postpartum vitamin A (topic 13) probably began to increase before the Community Guides formally introduced the topics.

Second Births to Mothers Surveyed at Baseline

District trainers with the support of SC staff explored 25 indicators (of 14 important phenomena) among 19 Phase 3 mothers who delivered another child during the project and whose reported practices for a previous delivery were described in the project's baseline 2003 survey (Table 9A). Overall, we learned about 368 behaviors (on average 19.4 per respondent). Practices were better for the second than for the first child (59.2 vs. 35.0% [=

23.6 + 11.4%], respectively), and most of the good outcomes for the second child (60.1% [131/218]) represented a change from a bad to a good practice; the remainder (39.9% [87/218]) represented sustaining a pre-existing good practice. Some of the more dramatic improvements were for knowledge of pregnancy-related or postpartum danger signs (both from 0 to 11), postpartum visit by Hamlet Health Worker or Commune Health worker (from 0 to 6 and 0 to 7, respectively). On the other hand, some practices were already good and were merely maintained, such as receipt of any antenatal care (15), receipt of TT (12), and delayed first bath and immediate breastfeeding (11 each).

Not all the change was good. At least of the bad outcomes were sustained bad practices (72.0% [108/150]), but some actually changed from good to bad (28% [42/150]). The most common consistently bad practices were: receipt of and taking maternal vitamin A (14 and 10, respectively), postpartum home visit by Community Health Worker (11), and knowledge of how to resuscitate a non-breathing newborn (9). The most common discouraging changes from good to bad were for knowledge of danger signs of pregnancy and delivery (7), knowledge of danger signs for newborn (6), delivery by trained attendant (5), delivery at health facility (5), and postpartum visit by Hamlet Health Worker (5). Reassuringly, seven of the changes from good to bad were reported by only one respondent. Overall, the changes among the 19 mothers were bad to good (35.6%), consistently bad (29.3%), consistently good (23.6%), and good to bad (11.4%).

Considering the mothers as the unit of analysis, most (12/19) improved; some (5/19) stayed the same; and a few (2/19) worsened (Table 9B). On average each mother (including those who worsened) improved 10 points (9.7 [185/19]). Excluding the five whose scores worsened at all, the remaining 14 improved their scores on average 15 points (15.4 [215/14]).

We explored the reasons for these changes (Tables 10A-C). Regardless of the type of practice (use of facility-based service, outreach-based service, or household behavior), we identified important internal (cognitive) and external (environmental) determinants for many. Not surprisingly, knowledge (or lack thereof) of benefit was a common internal determinant across most practices. Without knowing the benefits of antenatal care or facility-based delivery (especially if accompanied by success in the past without them), the inconvenience and expense of planning to and actually using them were inhibitors. On the other hand, the external determinants of supportive family members, even including father's participation in CMs, facilitated using antenatal care – as did increased availability through outreach. Most informants who reported health behaviors (Tables 10B) identified attending CMs and knowledge as important determinants of good practice.

Almost all informants liked CMs as both social gatherings and places to learn. None wanted to leave the meetings or to have them cease. Their families supported their attendance, including watching the other children. Sometimes everyone came. Mothers found it easy to understand the Guides, especially when pictures were used. They were "beautiful, big, and easy to understand and remember." They liked being invited and even encouraged to participate, and they did not fear being laughed at. A mother said, "Sometimes I understand, sometimes not. If not, then I can ask and not be afraid of being ridiculed or punished." Role-playing complicated activities, like using CDK or newborn resuscitation helped them learn and recall messages and skills. They enjoyed the CM, but they were not pressured to

attend or punished for not attending. One said, "No one controlled me or pushed me. I was free to join or not."

Not all responses were completely favorable. One mother said, "I like to attend CM, but do not see that I get any benefit." Another complained about not receiving an invitation from the Guide. Some preferred evening meetings; others preferred daytime meetings. One wanted more time role-playing newborn resuscitation. Some expressed preference for female Guides to ease conversations about maternal and even newborn care.

The following two vignettes illustrate many of the common determinants of healthy vs. unhealthy maternal and newborn care practices.

A "new adopter" of healthy practices From Thuan commune in Huong Hoa district, Mrs. X reported much improvement after attending CMs. She had four antenatal visits, took iron, received TT vaccination, and gave birth at the CHC. She was charged 100,000 VND for the delivery. Since she had no money at the time, she will pay that at the end of the harvest after selling cassava and banana. She said, "Even it costs 300,000 or 400,000 VND, I would still go to CHC to give birth because it is safer. The health staff was there and they do everything. Giving birth at home is not safe." She told the interviewer almost every detail about recommended behaviors and danger signs for mothers and newborn when given pictures of home care for mother and child. When we last visited her last child was 4 months old and she continued exclusive breast feeding, saying:

> *Giving only breast milk makes the child healthier and grow better. Other foods will give him a stomach ache. I am trying to work in the field near my house and come home and breast feed my child whenever he cries and my mother-in-law calls me. My family has fields far away, but I will work there later. I plan to give other foods to my child when he is 5 months old. I learned everything in community meetings. I like the meetings very much. We came there and were told a lot of useful things to make mothers and children healthier. The meetings were joyful. I want there to be more meetings in my hamlet.*

A "non-adopter" of healthy practices From Ta Long commune, Dakrong District, Mrs. Y lived near CHC, but only went there twice for antenatal care. She delivered at home, cut the cord with a used razor blade, and applied charcoal powder to cord stump. After birth she cleaned the baby with a towel dampened with warm water. She gave the infant complementary foods in the first month. She knew almost no danger signs for mothers and newborns. She explained that she did not know about the CDK since she did not attend the CMs on that topic, and she was not given CDK. "I only attended two meetings. I was rarely informed about them." She said that she did not learn new things because she had not had much difficulty yet.

Community Meeting Attendance

We measured attendance at CMs through supervision and inquired about attendance on the project's endline survey of all four phases (Tables 11A and 11B). Most meetings had 16-20 people with a range of 8 to 46 (Figure 8). Minority mothers were more likely than Kinh

majority mothers to regularly attend (52.6 vs. 33.1%, respectively). Conversely, Kinh mothers were almost three times more likely than minority mothers not to attend any CMs (21.3 vs. 7.8%, respectively). We combined the non-attendees with the irregular attendees to form two groups of similar size: regular attendees and non-regular attendees (Table 11B).

The demographics of the two groups were similar (Table 12A), except that non-regular attendees tended to have more living children (2.99 vs. 2.61, $p<0.05$), perhaps somewhat explaining their lower attendance. Regular attending and non-regular attending minorities were similar across all demographic characteristics (Table 12B). On the other hand, regular attending Kinh were more likely than non-regular attendees to be farmers, both fathers (42.7 vs. 21.0%, $p<0.05$) and mothers (49.1 vs. 34.6%, NS). The common alternative to farming was shop-keeping, which commonly had time demands during the hours of CMs. Likewise shop-keeping usually is associated with higher income, better access to information, such as newspaper and television, and *perhaps* better knowledge about health, thereby making CM attendance less possible or valued.

Community Meeting Attendance vs. Reported Outcomes

Regular attendance at CMs was associated with statistically significant higher reported levels of many healthy behaviors and knowledge (Table 13A): antenatal care, tetanus toxoid vaccination, receipt of iron and its use for at least three months, receipt of and use of CDK, delayed newborn bath, postpartum home visit within seven days, newborn weighing, and knowledge of immediate and later newborn danger signs – as well as lower levels of self-delivery at home. The first three (antenatal care, iron and TT) are closely related, but otherwise the behaviors span the antenatal, delivery, newborn, and postpartum periods. One healthy practice, foregoing prelacteal feeding, paradoxically decreased among regular attendees compared to non-regular attendees (88.3 vs. 94.9%, $p<0.05$). An additional 17 measures increased, but failed to reach statistical significance.

We used logistic regression to control for ethnicity, schooling, occupation of mothers and their husbands, and the number of living children (Table 13B). For the project population overall, regularly attending CMs conferred a two- to seven-fold or greater increase in the use of many of the same interventions: ANC, iron, CDK, clean delivery, delayed newborn bathing, early newborn weighing, postnatal care, plus exclusive breastfeeding for children less than four and less than six months of age – and in the knowledge of danger signs related to pregnancy and the immediate newborn period. The only untoward association with regular attendance at CMs was an increase in prelacteal feeding, noted above. While logistic regression allows a helpful summary of effects, it masks important differences among groups that may have programmatic significance.

Thus, we stratified reported practices by attendance at CMs and ethnicity. Indeed, minority regular attendees accounted for most of the improvement (Table 13C) noted above, specifically for antenatal care, iron, CDK, delayed newborn bath, newborn weighing within one day, knowledge of immediate and later newborn danger signs, and postnatal home visit. In addition, minority regular attendees had higher levels than minority non-regular attendees of clean cord cut; clean delivery; and knowledge of pregnancy-related danger signs, postpartum danger signs, and childhood danger signs. An additional 22 measures increased,

but failed to reach statistical significance, no doubt in part because of the small sample size after double-stratification.

Curiously, it was the Kinh regular attendees who had higher levels than non-regular Kinh attendees of prelacteal feeding (30.0 vs. 12.2%%, $p<0.05$). On the other hand Kinh regular attendees were less likely than non-regular counterparts to discard colostrum (6.7 vs. 15.1%, $p<0.05$), which is reassuring but a bit odd given the worrisome observation about prelacteal feeding. In addition, Kinh regular attendees reported compared favorably to non-regular attending counterparts for knowledge of immediate newborn danger signs and several indicators of complementary feeding (meals with three or four food groups, protein and fat). An additional 18 measures increased, but failed to reach statistical significance – even excluding the nine measures associated with CDK use and clean home delivery due to small numbers among the Kinh). Again the small sample size after double-stratification certainly reduced the biostatistical power to identify important changes.

Quality of Community Meetings

Community Guides required extensive training to master the many facilitation skills for implementing successful CMs. We developed check-lists for their supervisors (Commune and District Steering Committee members) to track their performance in many of these skills. We obtained 1099 observations on 87 supervisory visits (Table 14). Not surprisingly, most of the observations (78.2% [68/87]) occurred during Phase 3 proper, with the remainder spread out over the 15 months thereafter, up to the close of the project.

The overall performance of all skills (and mothers' participation) gradually increased, peaking at 78% in the quarter immediately after the cessation of Phase 3, July-September 2006. The supervisors identified the Community Guides' use of pictures (94%), sharing messages (93%), and demonstrating behaviors (84%) as the skills that were most commonly implemented according to standard.

Supervisors graded the key steps in the PD approach in the middle range (57 and 59% for asking "why?" and asking "how? for the Booster PD, respectively; and 54 and 54%, for asking "why?" and asking "how? for the New Topic PD, respectively). Guides use these subtle and abstract skills to probe to identify the determinants of an attendee's uncommon positive practice, either recently adopted (Booster) or pre-existing (New Topic). Supervisors noted no drop off in the quality of these skills, long after Phase 3 ceased – although the number of observations was less.

They identified the Guides' use of "bounce" questions (16%) and use of PDI findings (28%) as the weakest skills. "Bounce" questioning means asking the group to answer an attendee's question, i.e., bouncing the question off the facilitator back to the group. While the skills does not seem difficult (and in fact can be a strategy for the facilitator to avoid displaying ignorance!), either the Guides failed to demonstrate it or their supervisors failed to understand the concept. Using PDI findings required that a PDI was conducted, which in turn, required that a PD person or PD behavior had been identified. The absence of a PD example from the relatively small sample of attendees at a given CM probably accounts for some of the non-practice. Theoretically, the use of PDI findings should have approximated the level of use of the other PD skills (54-59%). In fact, it was about half this (28%),

suggesting that either the Guides learned no useful findings from their probing or that they forgot to apply the findings to encourage others to adopt new practices.

The measure "participation >60%" attempted to quantify the attendees' engagement in the meeting. It is not a measure of attendance. Community Guides managed to engage more than half their attendees about a quarter of the time (27% on average with a range of 13 to 37%). Unfortunately we do not know if ">60%" meant ~61 or ~100% or if ≤60% meant ~60% or ~0%. It would have been better to frame the measure as a continuous ("About what percent of attendees seemed actively engaged?") or an ordinal variable ("Which best describes the level of attendees' active engagement: <25%, 25-49%, 50-74%, ≥75%?").

Quality of Community Meetings vs. Reported Outcomes

The CM supervision forms did not allow valid or complete assessment of the overall quality of a hamlet's meetings because the number of recorded supervision episodes varied in time and place. For example, some meetings were only observed at the beginning of Phase 3 when lower quality would have been expected. Others were not observed at all. Thus, we relied on supervisors, mainly midwives, to categorize communities' meetings as good, average, or weak based on their formal and informal observations. We combined average and weak to form two groups: good vs. not good.

We found almost no association between the quality of CMs and the reported use of healthy behaviors (Tables 15A and B). Bivariate (Table 15A) and multivariate (Table 15B) analysis highlighted three statistically significant associations among the 39 assessed. (1) Use of ANC was more likely if CM quality was low and omitting prelacteal feeding was more likely if the quality of the CM was high. One could imagine that ANC use increased because attendees of confusing meetings sought clearer answers to questions. On the other hand, the use of ANC increased from three to four visits on average, and one would think that three visits would have been sufficient to clarify confusion if this were the explanation. Regarding prelacteal feeding, the assessment of and associations with this variable have proved challenging already, and we should not dwell on it. Finally, knowledge of pregnancy-related danger signs was associated with CMs without good quality. Again, if one assumed the convoluted logic that confusing meetings prompted attendees to seek other sources of information, then they could have learned more danger signs than their counterparts in better quality meetings. But why would not this phenomenon apply to *all* knowledge indicators?

Sustainability

We noted hints of sustainability earlier for: (1) reported maternal and newborn care which continued to improve during the quarter after the end of Phase 3 as noted through Community Guides' postpartum surveillance (Table 8 and Figures 1-7) and (2) quality of CMs, which continued during the five quarters after the end of Phase 3 as noted through supervisory check-lists (Table 14). Other results support sustainability.

DISCUSSION

Main Findings by Analysis

Phase 3 Baseline: The Phase 3 sample was representative of the mothers in the two districts, allowing generalization from Phase 3 to the remainder of the impact area. By the time that Phase 3 commenced, SC had trained all Commune Health Center staff in all interventions and delivery strategies, and outreach services were more available than before the Project. Nonetheless, the low level of reported use of these services suggests the important role of the CM as a source of both information and mobilization to use the services.

Phase 3 Postpartum Surveillance vs. Phase 3 Baseline: Community Guides achieve high coverage of the postpartum surveillance, exceeding the estimated number of deliveries applying the official crude birth rate (15.2/1000 total population). Even if the minority population experienced a slightly higher birth rate than their Kinh counterparts, the coverage is still commendable. The reported increase in the use of interventions over time is reassuring suggesting that change really did occur and that informants were not just trying to "give the correct answer." Reported practices continued to improve after the cessation of the intensive inputs suggesting that community norms actually changed during the brief one-year period of Phase 3. The lack of any perceptible effect of the timing of CM topic on reported improvement in practice or knowledge is puzzling. Perhaps individual Community Guides did not introduce the topics in the anticipated sequence – although they were trained in only a few topics at a time. More likely is the possibility of wide-ranging, perhaps one-on-one, conversations about immediate health questions that may have been "off-topic." Certainly, the CMs had an underlying mobilizing effect for better maternal and child health.

Second Births to Mothers Surveyed at Baseline: The strength of this small study was the longitudinal collection of data on mothers allowing the identification of their maternal and newborn care practices for two successive deliveries. We did not calculate the prevalence of individual indicators for the deliveries during Phase 3 because the numbers were small, but one can tell at a glance that they were similar to those noted on postpartum surveillance. Most of the change was for the better. The identified behavioral determinants were not surprising: information through CMs, family support (often facilitated through their attending the meetings) and outreach services. The mothers generally highly valued CMs as a non-threatening, interactive and active learning environment.

Community Meeting Attendance: CM attendance was widespread, and most commonly regular among minorities, according to the endline survey of all four Phases. Meeting size in Phase 3 varied greatly, but was usually more than 15 and sometimes three times that. Large groups may have been efficient in exposing many attendees to new messages, but they also may have been difficult to facilitate and particularly to engage actively the participants. On the other hand, even without *active* engagement of an attendee, one could imagine that she might observe the process of group norm change for a specific behavior through others' exchanges with the facilitator and finally their willingness to try something different. This group dynamic, even if engagement of all participants is sub-optimal due to its large size, seems more effective than loud-speaker dissemination of new messages. The latter strategy may reach just as many individuals (or even more), but it will reach them as individuals or at best

as small groups, where the processing of the information may be more superficial and where changes in group norms cannot be observed.

The CM strategy targeted minorities, few of whom (7.8%) denied attending any meetings (vs. 21.3% of Kinh). On the other hand, only about half of minority people (52.6%) regularly attended the meetings (vs. 33.1% Kinh). We are not sure of the reasons for non-attendance of minority mothers as attendees and non-attendees shared similar demographics. This needs to be better understood to inform future programming.

Community Meeting Attendance vs. Reported Outcomes: Attending CMs was associated with wide range of better practices and knowledge. The association was strongest for the minority mothers, which further supports the effect of the strategy because minorities were more likely to attend the meetings than their Kinh counterparts. The one practice which defied this trend was the *increase* in newborn prelacteal feeding among Kinh mothers who attended meetings, which remains a puzzle. Part of the relative success of minority compared to Kinh mothers can be explained by "regression to the mean," since their baseline was worse than that for Kinh.

Quality of Community Meetings: The Project supported an estimated 3552 CMs (296 hamlets x 12 meetings per hamlet), about 30% of which (90 hamlets x 12 meetings per hamlet = 1080 meetings) occurred in Phase 3. The numbers in both cases were certainly larger as many hamlets continued the meetings after the core curriculum was finished. The Project supervised a small sample (8.1% [87/1080]) of the Phase 3 meetings. At best each meeting was supervised once – sometimes early in, sometimes late in, and sometimes after the Phase.

The quality of the meetings was high. The fact that quality was observed to gradually increase over the life of Phase 3 supports the effect of the training and the validity of both our supervision methods and our conclusions. As noted above, participation in meetings was high, which is consistent with the conclusion that the quality of the meetings was high. Community Guides mastered many group facilitation skills, including the abstract, problem-solving elements of the PD inquiry. SC's facilitation skills training video[lxv] was likely important in imparting these skills. Also noted above, the size of the meetings was large. This makes the observation all the more remarkable that the Guides actively engaged more than 60% of the attendees in about a quarter (27%) of the meetings. We do not know if this level of engagement was clustered among the smaller meetings.

Quality of Community Meetings vs. Reported Outcomes: We are reluctant to accept the conclusion that there is generally no association between CM quality and reported practice or knowledge because this defies conventional wisdom in behavior change and in education and indeed in social programming in general. Furthermore, we think that the approach (supervisors categorizing meetings through their global impressions) was flawed because of misclassification or because the classification stressed aspects of the meeting that were irrelevant to behavior and knowledge change.

On the other hand, suppose the conclusions were true! One could assume that CMs, *regardless of quality*, were beneficial. It is not illogical to imagine that mothers could benefit from: taking a two-hour break from a busy schedule of manual labor to relax, meet with peers, and encourage one another to adopt healthier practices. It is less logical to imagine

that mothers would choose to adopt specific practices or to learn specific messages if they were not clearly delivered, i.e., unless the meetings had a measure of good quality.

Sustainability: The methods of this evaluation plan precluded in-depth understanding of sustainability; however, hints – Guides' continuing to hold meetings after the formal end of Phase 3 and mothers' desire for them to continue – support sustainability.

Pulling It All Together

We set out to assess the acceptability, feasibility, quality, effect, and sustainability of the "PD-Plus" approach for improving newborn, child and maternal care. In fact, the PD approach is inextricably bound to the CM strategy to deliver messages about life-saving interventions. The scope of this evaluation focused more on the CM strategy than on the PD-Plus approach within it (Table 16). On the other hand, information from other studies can help assess the PD-Plus approach. We will consider both, in sequence.

The CM strategy was acceptable given mothers' (especially minorities) high participation and relatively high level of engagement. The strategy was feasible, especially in light of individual hamlets' creative scheduling (combining topics, repeating topics, scheduling fortnightly rather than monthly to fit with other community events).[lxvi] The quality of the strategy was good given the Guides' demonstrated proficiency in use of facilitation skills. The effect of the strategy was high, in light of the association between attendance and reported use of healthy behavior. The strategy seems sustainable because the Guides continued to conduct meetings after the end of the intensive phase and because communities from earlier phases were already continuing them, adding new topics.

In addition, three other studies[31,, lxvii, lxviii] in 2007 further confirmed and characterized sustainability. During the final evaluation of CS18, we tested indicators for measuring various domains of community capacity,[31] one of which, "sense of ownership," had "intention to sustain" as a sub-domain. Partners from both district steering committees, from interviewed commune steering committee members and from communities either were already sustaining or planned to sustain CS18 strategies, including CMs. Some hamlets were planning to repeat the topics for young couples or were expanding the content to address bird flu. Many informants soberly recognized the need for on-going budgetary support for communication material. The Project's Final Evaluation[32] also included sustainability indicators, all of which were reached or exceeded, including Provincial Health Services adapting Project approaches for other districts (yes) and communes adopting CS18 approaches (target 80%: actual 100%). Finally is the sustainability of effect. We stratified Project's endline household survey[33] by ethnicity and by early vs. late phase. Early phase minority mothers reported improvements in most (46/50 [92%]) indicators, and Kinh counterparts reported improvements or maintenance of levels of 100% in most (46/50 [90%]) indicators. These findings strongly suggested behavioral sustainability since Phases 1 and 2 had ceased years earlier.

The PD-Plus approach was also acceptable. Vietnam reveres Ho Chi Minh, the founder of their modern state. He, too, advised imitating positive people and practices. Indeed, the Project took advantage of his wisdom and explained positive deviance through his adage.

Our evaluation showed that the approach was moderately feasible, in light of the Guides' fairly good ability to conduct the PD inquiries on newly and recently introduced behaviors.

Other evidence supports the effect of the approach. The community capacity study[30] at Project endline did not specifically inquire about the role of "positive practices" and "positive people." Nonetheless it gathered spontaneous references to this approach from: (1) Commune Steering Committee members ("…Youth Union members and Population Motivators already apply the 'positive practices' approach in economic development and farming…" and "…with 'positive deviance,' good practice is implied…") and from (2) Community Guides referring to sources of information ("Village head, Women's Union, and 'positive people'") and role models ("Follow them. They can be trusted because the person may have already demonstrated a better outcome…You have to work with families to change their thinking and behavior").

Limitations

The evaluation was not designed to tease apart the effect of the CM from the PD-Plus approach that Community Guides were supposed to have used. Nor were we able to identify the role of other important elements of the CM, for example the colorful mothers' booklet that summarized key health messages and possibly stimulated household discussion. Likewise, we made no attempt to explore the PD-informed hearths that some communities were implementing to improve diet and nutritional status. Finally, the evaluation was not able to control for secular trends that affected the whole impact area, such as the completion of a national highway which better connected these remote districts with the economic activity of the coast.

Bottom Line

The PD approach is at once self-evident and complex. Common experience vouches for the value of and the existence of rare individual "doers" of healthy behaviors in many settings. On the other hand, using this approach to change behavior within programs is challenging. This is especially true: (1) when the practice of good behaviors is low (challenging the identification of the PD person or behavior); (2) when opportunities to perform the behavior in question are low (i.e., birth-related practices, thereby reducing the opportunity for identification); (3) when identifying transferable motivations for a given person's behavior requires great skill and sensitivity (probing); (4) when the educational level of the community is low (i.e., not accustomed to "asking why"); (5) when behavior change is more commonly attempted through loud-speaker; and (6) when the frequency of supervision was low (given the widely dispersed simultaneous implementation in 90 sites). Given this context, we should be pleased that Guides seemed to have implemented the PD-Plus approach as often and as well as they did!

We feel that the CM forum is a powerful strategy, not because of the PD-Plus approach, but because of Guides trained to deliver life-improving messages responding to a community's felt need, supported with excellent communication material, and skilled in group facilitation and in assuring a safe, happy learning environment. We think that attempting to embed "PD-lite" within CMs is worth trying in many settings. "PD-lite" is a modest effort to identify "doers" and "new adopters" (call them "role models"), to publically praise them

(within cultural norms), and attempt to learn enough from their experience to secondarily motivate others to try to imitate them.

In summary, the PD-Plus idea is programmatically complex, but worth simplifying and further testing. Meanwhile, for isolated, uninformed ethnic minorities like in CS18, the CM strategy, with occasional reference to real positive role-models, works.

Table 1: Traditional PD vs. PD-Plus

Parameter	Traditional PD	PD-Plus
Outcomes	Health status (weight for age)	Behaviors
PDI Focus	Transferable behaviors that explain uncommonly good health status	Transferable behavioral determinants the explain the uncommonly good behavior
Types of Behaviors	Practiced many times daily for months, years, or indefinitely (complementary feeding, hygiene, etc.)	Ranging from repeatedly practiced for moderate intervals (exclusive breastfeeding) to those practiced rarely once (clean delivery).
PDI Timing	Baseline	Whenever new topic introduced ("new topic PDI") or whenever old topic reviewed or new adopter identified ("booster PDI")
PDI Intensity	Single episode of one to two days of formative research facilitated by external experts	Repeated brief 5-10 minute iterations throughout project implementation by community facilitators
Quality	Not rigorously monitored	Rigorously monitored

Table 2: Sequence of Meeting Topics (monthly or twice monthly)

#	Topic
1	Introduction of Home health care for maternal and child
2	Antenatal care
3	Danger signs during pregnancy and labor
4	Bleeding during pregnancy, labor and after delivery
5	Using clean delivery hit
6	Postpartum care for newborn
7	Long labor
8	Immediate and EBF
9	Practice breastfeeding
10	Home care for low birth weigh
11	Newborn resuscitation
12	Danger signs on mother and newborn after delivery
13	Postpartum care
14	Home care for children under two.

Table 3: Facilitation Skills

Skill	Core PD Skill	Monitored
Demonstrating polite respect		
Demonstrating positive attitude		
Encouraging		
Asking open-ended questions		
Probing		
Bouncing		X
Asking closed-ended question		
Summarizing		
Using picture cards		X
Giving a technical statement		
Call on the quiet one		
Role-playing		X
Probing…why?	X	X
Probing…how?	X	X
Clarifying		
Inviting		
Demonstrating		X
Working together **[Kiem please revise]**		

Table 4: Phase 3 Communes

District	Commune	# Hamlets	Ethnicity		Population
			Kinh	Van Kieu	
Dakrong	Hai Phuc	3	x	x	472
	Ta Long	9		x	2314
	Ba Long	10	x		2682
Huong Hoa	Tan Long	10	x		3095
	Tan Lap	8		x	3541
	Khe Sanh	8	x		10067
	Thanh	10		x	2775
	Thuan	14		x	2581
	Xy	6		x	1527
	Huong Phung	12	x	x	3770
Total	10	90	5	7	32824

Table 5: Summary of Evaluation Methods

#	Method	Sample	Questionnaire	Variables	Data Collector	Date
1	Population-based, cluster randomized, baseline household survey	248 Phase 3 mothers with children <6 m	Closed-ended, pre-coded (Annex 1)	Demographics, use of interventions, knowledge	External	Jul '05
2	Surveillance	634 postpartum Phase 3 mothers	Closed-ended check-list (Annex 2)	Use of interventions	Community Guide	Jul '05 to Sep '06
3	Follow-up quantitative and qualitative survey	19 mothers of original 248 (in Phase 3 baseline survey) who had another child during Phase 3	Closed-ended, pre-coded questionnaire (Annex 3)	Use of interventions	District supervisors	Sep '06 to Jun '07
			Open-ended question guide (Annex 3)	Determinants of use or non-use	District supervisors	
4	Structured supervision	87 Phase 3 Community Meetings	Closed-ended supervision check-list (Annex 4)	Quality of facilitation skills	Commune Steering Committee	Jul '05 to Sep '06
5a	Population-based, cluster randomized, endline household survey	397 Phase 1-4 mothers with children <24 m	Closed-ended, pre-coded (Annex 5)	Demographics, use of interventions, knowledge, attendance at Community Meeting	External	May '07
5b	Population-based, cluster randomized, baseline household survey	400 Phase 1-4 mothers with children <24 m	Closed-ended, pre-coded	Demographics, use of interventions, knowledge	External	Dec '03

Table 6: Characteristics of Mothers and Children: Baseline and Endline for All Phases and Baseline for Phase 3 (% unless otherwise specified)

Characteristic	Phases 1-4		Phase 3
	2003	2007	2005
Mothers' age (n)	**(385)**	**(380)**	**(239)**
< 20	5.5	4.2	13.8
20-34	81.6	80.8	72.0
35+	12.9	15.0	14.2
Mothers' ethnicity (n)	**(398)**	**(395)**	**(248)**
Kinh	41.6	40.8	35.5
Pakoh and others	13.8*	5.3*	2.4
Van Kieu	44.7*	53.7*	60.9
Mothers' schooling (n)	**(399)**	**(397)**	**(248)**
No schooling	46.8	47.4	48.0
Prim. & secondary	43.5	39.3	23.4
High secondary+	9.7	13.4	28.6
Mothers' work (n)	**(400)**	**(397)**	**(248)**
Farming	79.9	74.1	85.1
Children's ages (n)	**(400)**	**(394)**	**(248)**
0-5 months	31.4	32.7	100.0*
Children's gender (n)	**(400)**	**(397)**	
Female	48.5	49.1	-
# Living children (n)	**(399)**	**(396)**	**(247)**
Mean (SD)	2.70 (1.69)	2.65 (1.55)	2.9 (1.7)

n=number (i.e., denominator); * p< .05 (baseline vs. endline)

Table 7: Overall Project Results: Baseline vs. Endline (% unless otherwise specified)

Indicator	Phases 1-4		Phase 3
	2003 (n)	2007 (n)	2005 (n)
Antenatal			
≥3 Antenatal care visits	35.9 (395)	77.7 (386)	32.3 (248)
# Antenatal visits (mean ± SD)	1.89 ±1.41 (395)	3.33 ±1.71 (386)	1.7 ± 0.1 (248)
TT2	86.6 (239)	94.0 (317)	54.0 (248)
Using iron	42.3 (397)	94.1 (392)	55.2 (248)
Using iron ≥3 months	14.0 (387)	77.7 (390)	22.2 (248)
Know 2+ danger signs: pregnancy	21.8 (400)	72.0 (397)	29.0 (248)*
Know 3+ danger signs: pregnancy	5.0 (400)	44.9 (396)	16.1 (248)*
Delivery			
Give birth at health facility	43.0 (400)	65.2 (397)	51.2 (248)
Delivery by trained birth attendant	55.5 (400)	67.9 (396)	57.0 (244)
Receive clean delivery kit	41.7 (228)	59.9 (137)	32.2 (121)
Use CDK – if received CDK	91.6 (95)	98.8 (80)	32.5 (40)
Clean delivery	69.5 (397)	85.8 (386)	56.5% (248)
Know 2+ DS: delivery	14.6 (398)	46.2 (396)	29.0 (248)*
Know 3+ DS: delivery	3.8 (398)	16.9 (396)	16.1 (248)*
Newborn			
Immediate breastfeeding	74.2 (396)	92.2 (395)	63.7 (248)
Delay newborn bath	42.4 (224)	73.0 (137)	69.4 (248)
Know 2+ DS: NB immediate	22.4 (398)	41.3 (397)	39.5 (248)**
Know 3+ DS: NB immediate	5.8 (397)	12.6 (397)	29.0 (248)**
Know 2+ DS: NB < 7 days	28.8 (399)	60.8 (395)	39.5 (248)**
Know 3+ DS: NB < 7 days	9.3 (399)	33.7 (395)	29.0 (248)**
Postnatal			
Postnatal home visit within 7 days	26.9 (398)	58.7 (395)	13.3 (248)***
Postnatal care within 7 days	48.6 (399)	81.3 (395)	-
Maternal vitamin A supplementation	25.6 (395)	68.4 (386)	29.0 (248)
Know 2+ DS: postpartum	12.1 (397)	34.0 (397)	29.4 (248)
Know 3+ DS: postpartum	0.8 (397)	10.3 (397)	13.3 (248)
Child			
Exclusive breastfeeding: child < 4 mos	39.3 (89)	51.9 (81)	28.4 (109)
Exclusive breastfeeding: child < 6 mos	34.2 (117)	44.5 (128)	16.1 (248)

(n)=number (i.e., denominator); * p<0.05 ** Not significant with continuity correction
*Newborn danger signs applicable for first 28 days without distinction between "immediate" vs. "<7 days."
**Combined pregnancy and delivery danger signs
***By hamlet health worker

Table 8: Phase 3 Mothers' Reported Practices of Maternal and Newborn Care – Baseline vs. Postpartum Surveillance [% and (denominator)]

Indicator	Baseline	Postpartum Surveillance				
	Jul '05	Jul-Sep '05	Oct-Dec '05	Jan-Mar '06	Apr-Jun '06	Jul-Sep '06
Any ANC	81.0 (248)	91.4 (140)	97.5 (122)	93.9 (131)	95.3 (149)	**100.0** (100)
3+ ANC	32.3 (248)	54.7 (139)	73.1 (119)	69.0 (129)	**74.7** (146)	66.7 (99)
Mother received iron	55.2 (248)	73.5 (136)	95.0 (121)	97.7 (131)	98.0 (148)	**100.0** (102)
Mother took iron 3+ months	22.2 (248)	32.8 (131)	76.1 (109)	82.0 (122)	85.3 (136)	**96.9** (98)
TT2	54.0 (248)	84.0 (106)	79.8 (94)	91.2 (102)	**92.4** (131)	90.4 (94)
Delivery at health facility	51.2 (248)	50.7 (138)	52.6 (114)	56.2 (130)	56.9 (137)	**67.0** (100)
Delivery by Trained Attendant	57.0 (244)	61.0 (141)	59.3 (123)	60.3 (131)	63.5 (148)	**73.2** (97)
Receive CDK*	13.2 (121)	43.5 (69)	87.3 (63)	74.1 (58)	77.3 (66)	**91.2** (34)
Use CDK (of receivers)	10.7 (121)	38.6 (70)	85.5 (62)	74.1 (58)	71.4 (63)	**88.2** (34)
Baby at mother's side after delivery*	66.1 (121)	95.6 (68)	96.8 (63)	98.3 (59)	98.6 (72)	**100.0** (35)
Delayed bath till 2nd day *	42.1 (121)	69.6 (69)	69.8 (63)	80.4 (56)	86.8 (68)	**94.3** (35)
Immediate BF*	48.8 (121)	73.5 (68)	57.4 (61)	74.1 (58)	84.5 (71)	**94.3** (35)
Exclusive BF (0-28 days)	44.4 (36)	71.1 (142)	74.4 (121)	86.9 (130)	96.0 (150)	**99.0** (102)
Mother received vitamin A	29.0 (248)	70.5 (139)	85.2 (122)	93.1 (131)	96.7 (150)	**98.0** (98)
Mother took vitamin A	29.0 (248)	65.7 (137)	85.1 (121)	92.3 (130)	**96.6** (148)	98.0 (98)

***among home deliveries**

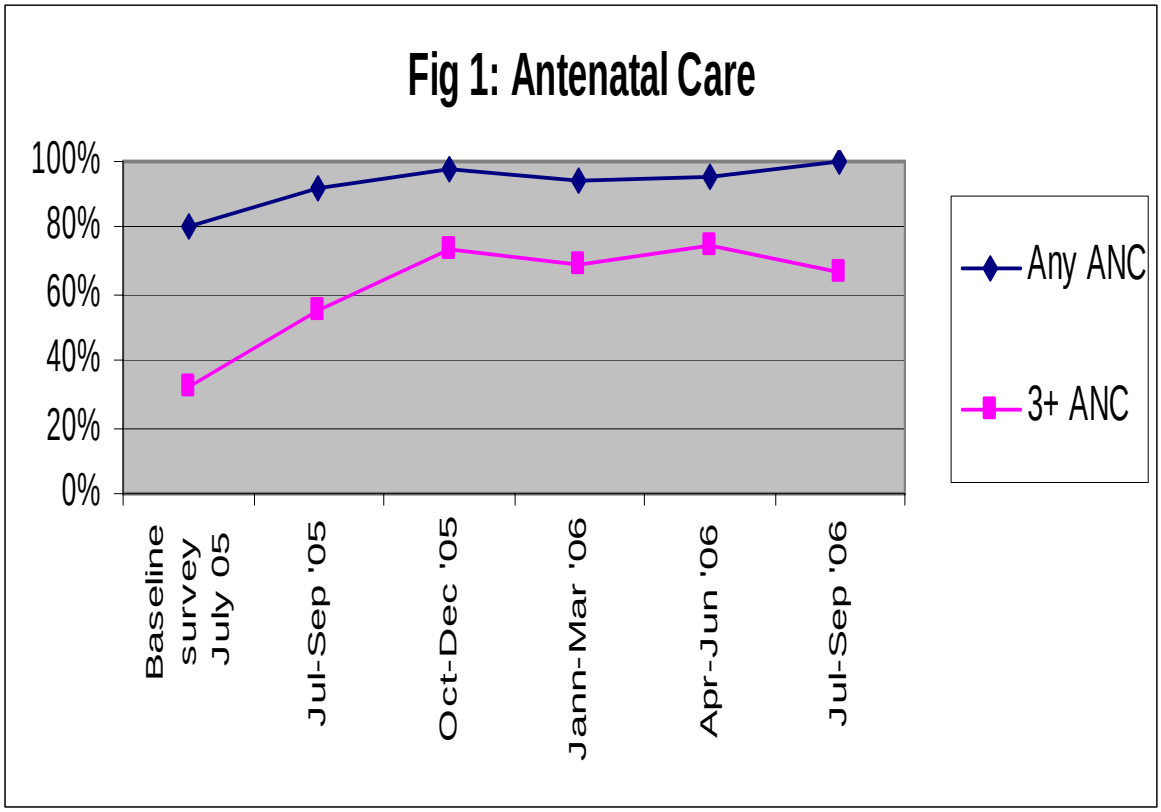
Fig 1: Antenatal Care
100%
80%
60%
40%
20%
0%
Baseline survey July 05
Jul-Sep '05
Oct-Dec '05
Jann-Mar '06
Apr-Jun '06
Jul-Sep '06
Any ANC
3+ ANC

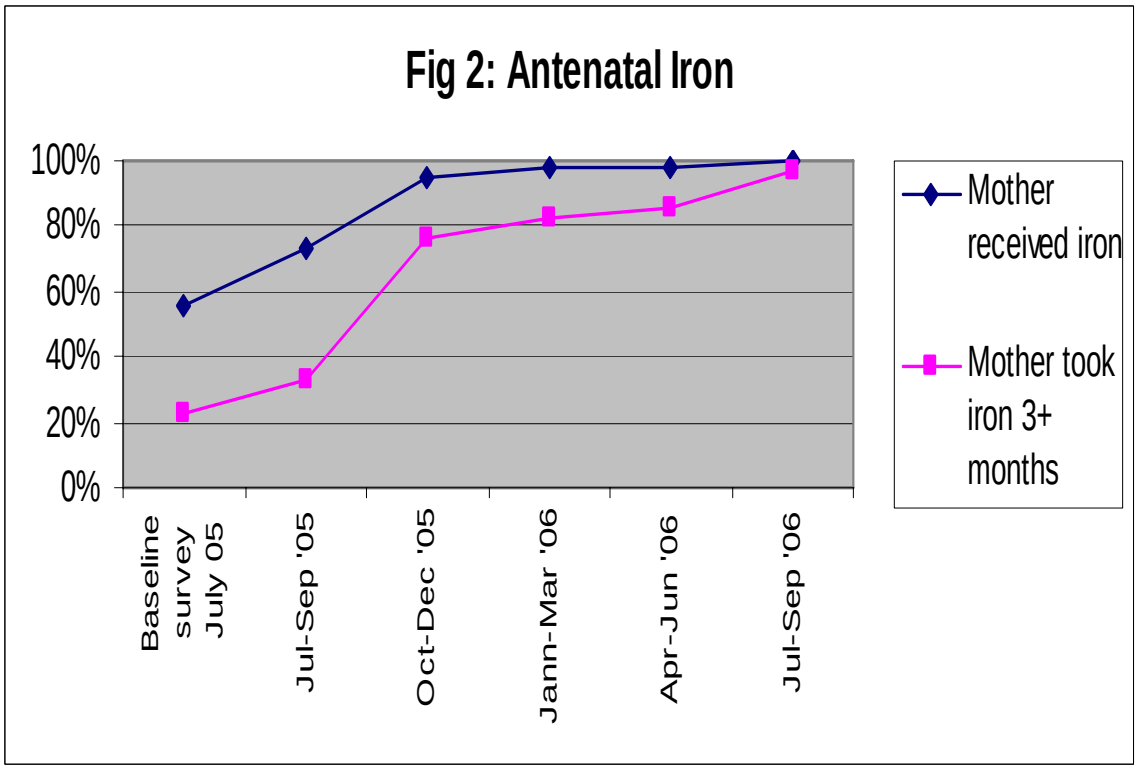
Fig 2: Antenatal Iron
100%
80%
60%
40%
20%
0%
Baseline survey July 05
Jul-Sep '05
Oct-Dec '05
Jann-Mar '06
Apr-Jun '06
Jul-Sep '06
Mother received iron
Mother took iron 3+ months

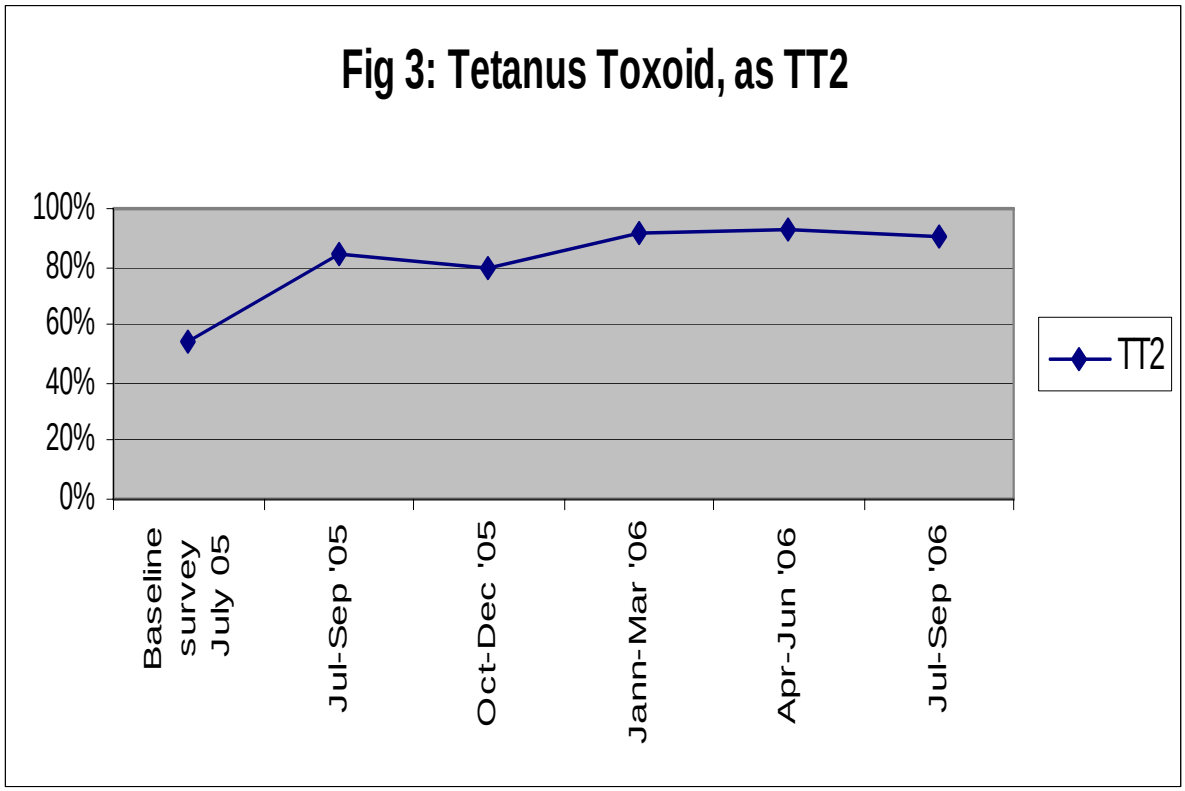
Fig 3: Tetanus Toxoid, as TT2
100%
80%
60%
40%
20%
0%
Baseline survey July 05
Jul-Sep '05
Oct-Dec '05
Jann-Mar '06
Apr-Jun '06
Jul-Sep '06
TT2

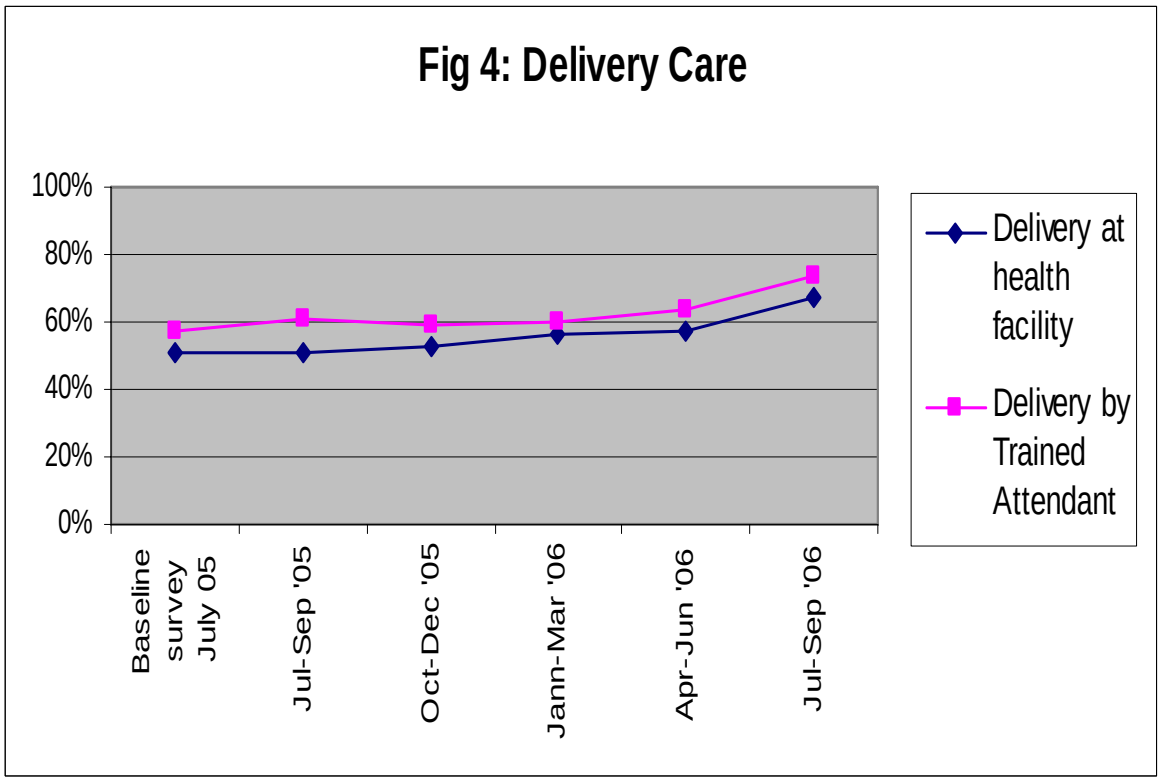
Fig 4: Delivery Care
100%
80%
60%
40%
20%
0%
Baseline survey July 05
Jul-Sep '05
Oct-Dec '05
Jann-Mar '06
Apr-Jun '06
Jul-Sep '06
Delivery at health facility
Delivery by Trained Attendant

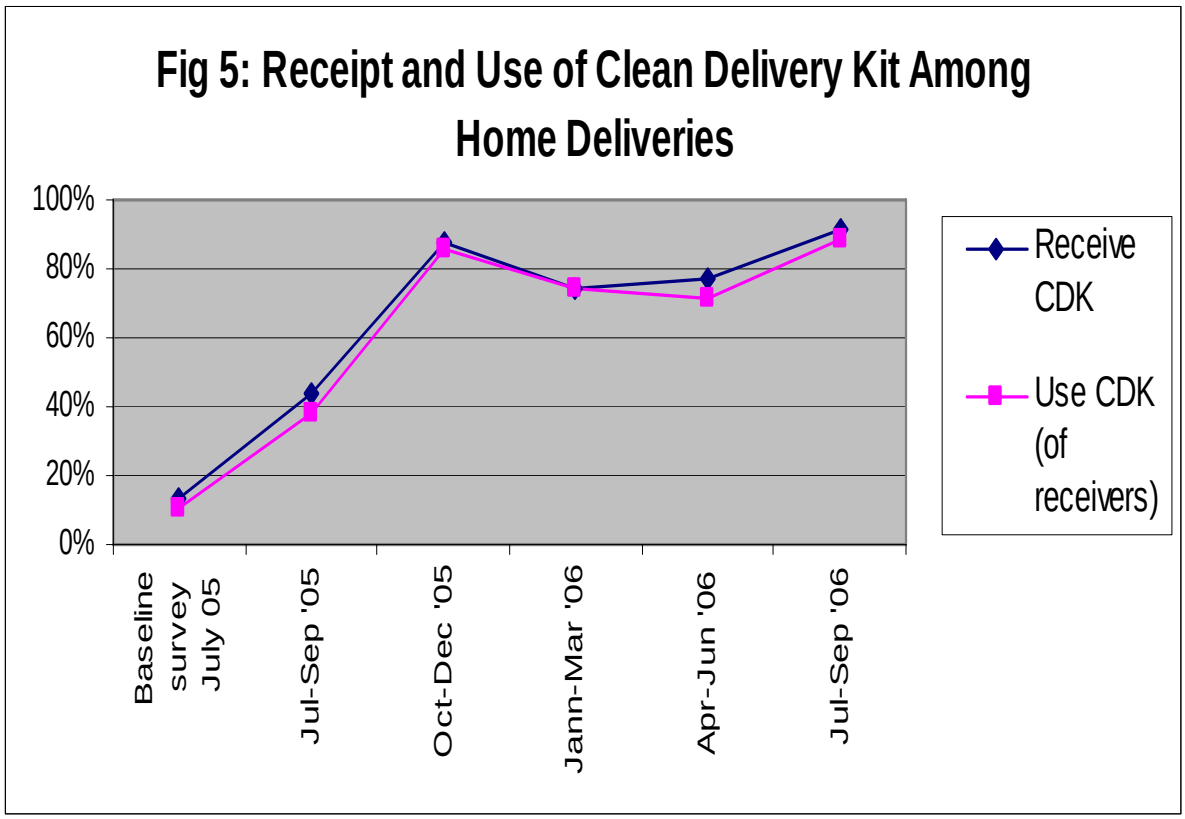
Fig 5: Receipt and Use of Clean Delivery Kit Among Home Deliveries
100%
80%
60%
40%
20%
0%
Baseline survey July 05
Jul-Sep '05
Oct-Dec '05
Jann-Mar '06
Apr-Jun '06
Jul-Sep '06
Receive CDK
Use CDK (of receivers)

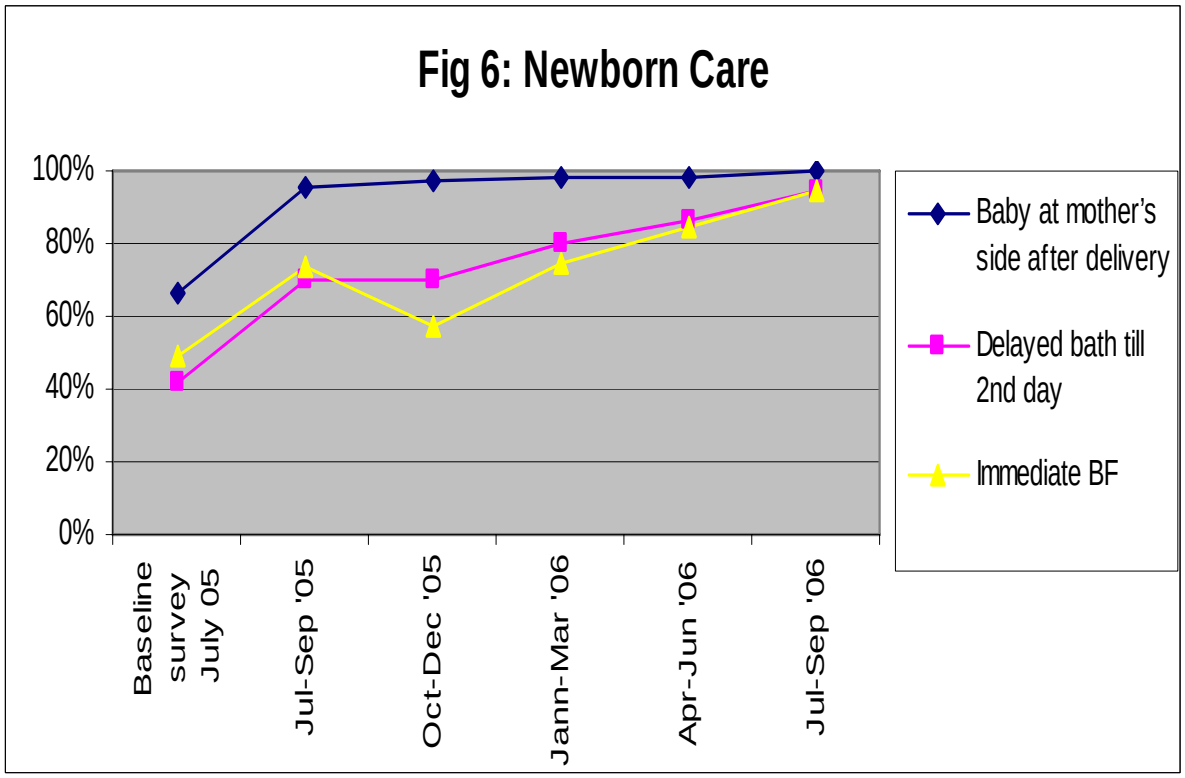
Fig 6: Newborn Care
100%
80%
60%
40%
20%
0%
Baseline survey July 05
Jul-Sep '05
Oct-Dec '05
Jann-Mar '06
Apr-Jun '06
Jul-Sep '06
Baby at mother's side after delivery
Delayed bath till 2nd day
Immediate BF

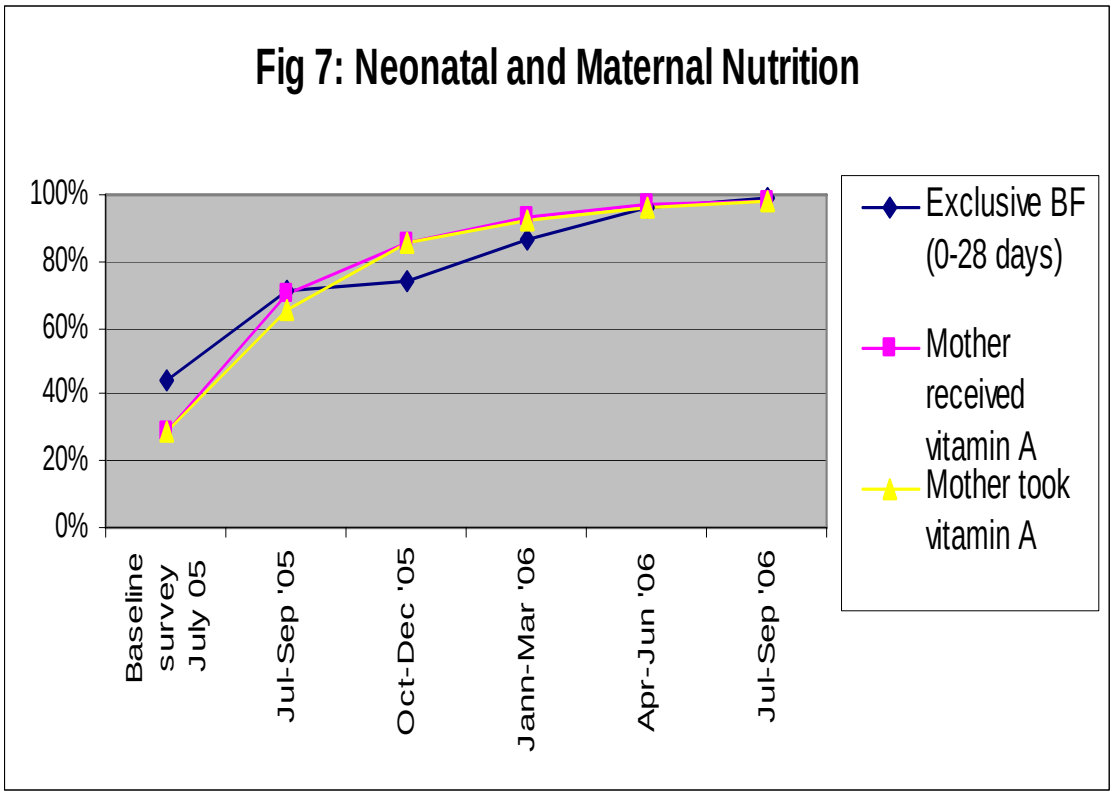
Fig 7: Neonatal and Maternal Nutrition
100%
80%
60%
40%
20%
0%
Baseline survey July 05
Jul-Sep '05
Oct-Dec '05
Jann-Mar '06
Apr-Jun '06
Jul-Sep '06
Exclusive BF (0-28 days)
Mother received vitamin A
Mother took vitamin A

Table 9A: Comparison of Knowledge and Behaviors Among 19 Mothers Who Participated in Baseline Phase 3 Household Survey and Who Delivered Another Child During Phase 3 of the Project by Outcome

Indicator	Behaviors for Initial Child And Next Child (n)				Total
	Bad To Good	Good to Good	Bad To Bad	Good To Bad	
Receive any ANC	1	15	2	1	19
# ANC visits received	11	6	2	0	19
Receive 3+ ANC visits	6	3	9	1	19
Receive antenatal iron	12	7	0	0	19
Duration of taking antenatal iron	13	2	0	0	15
Take iron for 3+ months	7	2	7	0	16
Receive TT vaccination	3	12	1	1	17
Planned place of delivery at health facility	11 at facility*		8 at home*		19
Actual place of delivery at health facility	1	7	6	5	19
Receiving CDK as preparation for delivery	4 with CDK*		13 without CDK*		17
Know danger signs of pregnancy and delivery	11	0	1	7	19
Know 3+ danger signs of pregnancy and delivery	8	2	6	3	19
Trained birth attendant	1	7	6	5	19
Among home deliveries, receive CDK	3	1	2	0	6
Among home deliveries, use CDK	2	0	3	1	6
Delayed first bath	6	11	0	1	18
Postpartum home visit by Hamlet HW	6	1	6	5	18
Postpartum home visit by Commune HW	7	0	11	0	18
Receive maternal vitamin A	2	1	14	1	18
Take maternal vitamin A	2	1	10	1	14
Know postpartum maternal danger signs	11	2	3	2	18
Know newborn danger signs	7	4	2	6	19
Know response to birth asphyxia	6	1	9	2	18
Immediate breastfeeding	4	11	0	2	17
Exclusive breastfeeding	5	2	8	0	15
Total (%)	**131 (35.6)**	**87 (23.6)**	**108 (29.3)**	**42 (11.4)**	**368**
	218 (59.2)**		**150** (40.8)**		

***Baseline status not known.**

****Excludes planned delivery place and receiving CDK**

Table 9B: Performance of 19 Mothers Who Participated in Baseline Phase 3 Household Survey and Who Delivered Another Child During Phase 3 of the Project*

Mother No.	Number of behavior/knowledge items						Score	Classification
	Bad --> Good	Currently Good*	Good --> Good	Bad --> Bad	Currently Bad*	Good --> Bad		
1	10	5	10	0	0	1	36	improved
2	17	1	3	1	3	1	31	improved
3	8	2	9	5	1	0	22	improved
4	12	1	4	6	3	1	17	improved
5	11	2	4	1	3	4	16	improved
6	8	2	7	5	1	2	16	improved
7	7	2	8	3	2	2	15	improved
8	4	1	8	0	1	1	14	improved
9	5	3	8	3	1	4	10	improved
10	8	1	6	9	2	1	10	improved
11	10	0	4	10	3	0	10	improved
12	9	1	4	9	2	2	8	improved
13	4	2	9	2	1	5	7	no change
14	4	1	9	7	2	1	7	no change
15	5	3	3	5	1	6	(1)	no change
16	6	0	3	13	3	0	(3)	no change
17	5	0	2	11	3	0	(4)	no change
18	3	2	4	7	3	6	(11)	worsened
19	1	4	4	5	2	8	(12)	worsened

*Every outcome treated equally. Scoring: bad to good (+2), currently good without baseline value (+1.5), good to good (+1), bad to bad (-1), currently bad (-1.5), good to bad (-2). Categorization: improved (≥+8), no change (≥-7 and <+7), worsened (<-7).

Table 10A: Facilitators and Inhibitors of Mothers' Behaviors

Type of Behavior	Outcome	Benefit	Facilitator	Inhibitor
Use of facility-based service	Delivery at CHC	Health staff know what to do if something goes wrong	• Knowledge of benefit either from CM or CHC staff (but not mass media) • CHC close to home	• Incomplete understanding of benefit • May have to pay • CHC far • Want family members near by for traditional activities (bathing with herbs, drinking herb water) • Home delivery more convenient • Hard to plan help for chores since delivery day unknown • Confident in home delivery because family and neighbors know how to use CDK
	Antenatal care (mostly from CHC)	Midwife teaches them how to take care of themselves (work and diet) and to recognize problems	• Knowledge of benefit either from CM or CHC staff • CHC close • Outreach ANC • Husbands and mothers-in-law encourage, having heard from CM and occasionally from TV or radio (including helping with housework • Husbands attend CM	• Unaware of benefit • Unaware of timing of outreach • Far from facility • "Too tired" to go to CHC • No problems in past • "I feel fine" • Husband did not help transport • Busy with housework
Use of mainly outreach-based service	Antenatal iron	Helps mother; prevents anemia	• Knowledge of benefit either from CM or CHC staff (but not mass media) • Free • Available from CHC and HHW • The more ANC, the more iron	• Unaware of benefit • Lack of ANC •
	Tetanus toxoid	Prevents disease in baby	• HHW notifies about vaccination day • Provided by outreach	• Unaware of benefit

Family household practice	Clean delivery kit	Clean delivery	• Attended CM to learn why and how to use CDK	• CHC staff did not provide • Passively await distribution • Not at CM to learn about CDK and how to use it • Incorrectly assumed CDK not free
	Immediate breast-feeding	BF and colostrum good for baby; IBF stops bleeding	• Knowledge of benefit	•
	Delayed bath	Keeps baby warm	• All learned from CM	•
	Know maternal and newborn danger signs	Early identification allows early care	• All learned from CM	•
Individual household practice	Exclusive breast-feeding	EBF good for baby	• Husband or in-laws (especially if attend CM) bring baby from paddy • Choose to work in close paddy to allow BF during day • Hamlet leaders support CGs' messages • Husband forbids extra food for baby (even if mother fearful)	• Fear "not enough milk" – even when aware of benefit • Have to work early in or travel far to paddy • Believe baby needs rice and other foods • In-law feels that expressed mild is "spoiled" • Breast pain or other difficulties
	Maternal vitamin A	Helps baby not to be blind	• CG provide vitamin A	•

Table 10B: Determinants of Mothers' Reported Healthy Behaviors

Behavior (n)	Determinant	Number of mothers
Improved behaviors or knowledge of delivery and postpartum care (19)	• Attended the community meeting on delivery and postpartum care	16
Improved knowledge of maternal and newborn danger signs and newborn resuscitation (16)	• Attended the community meeting on maternal and newborn danger signs and newborn resuscitation	15
Know newborn and maternal danger signs and how to treat asphyxia (16)	• Attended the community meetings	14
Warm newborn (17)	• Know benefit	13
Delay first bath (17)	• Know benefit	13
Immediate breastfeeding (15)	• Know benefit	12
Facility-based delivery (8)	• Know benefit	7
CDK use (4)	• Know about CDK and received it	4

Table 10C: Determinants of Mothers' Reported Unhealthy Behaviors

Behavior (n)	Determinants	Number of mothers
Home delivery (11)	• No difficulty with past delivery	9
	• Enjoy convenience of giving birth at home	5
	• Live too far from health facilities	4
	• Lack money	4
	• Current delivery ended too fast to reach facility	3
	• Know the benefit of facility delivery	2
Not seeking help from health worker (11)	• Family members and neighbors good enough	6
	• Live too far from health workers	3
Not using CDK (7)	• Did not have CDK	7
	• Not attend community meetings	4
	• Did not know about CDK	3

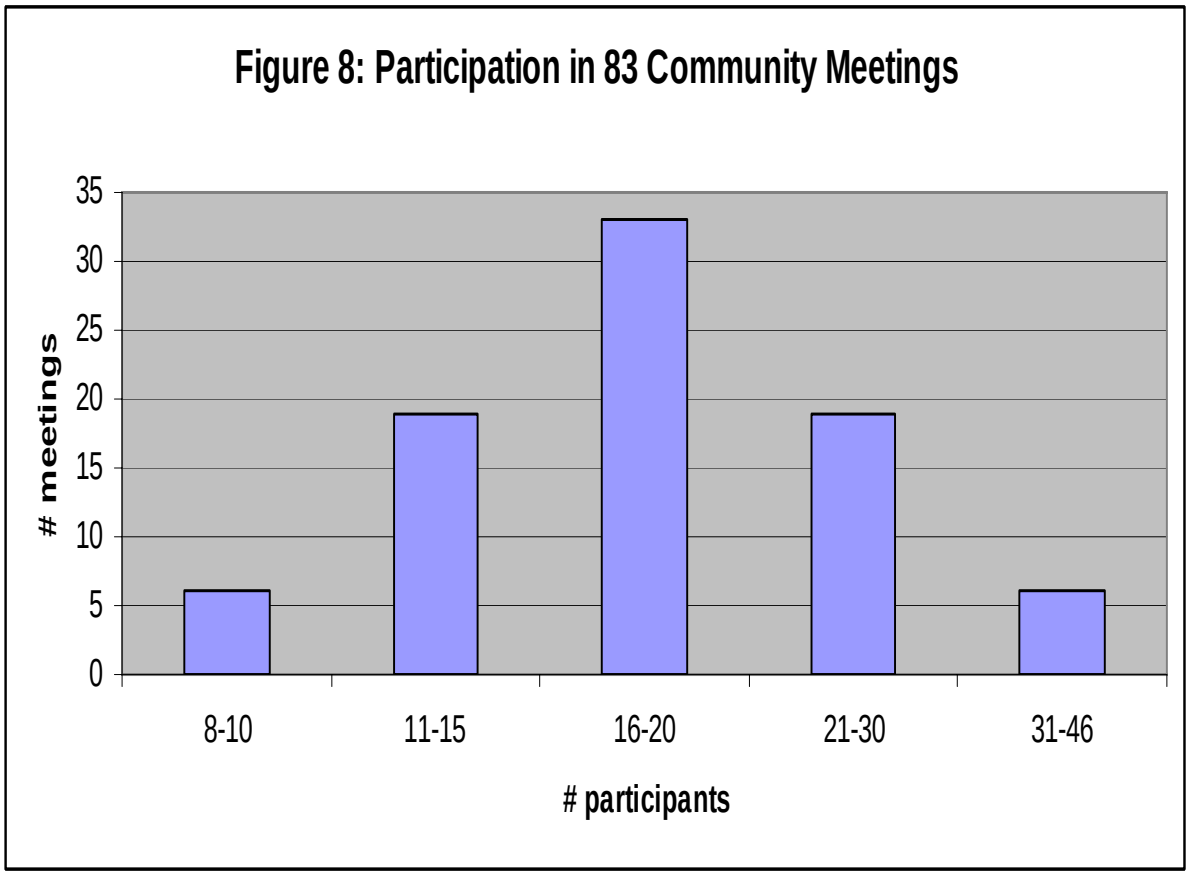
Figure 8: Participation in 83 Community Meetings
35
30
25
20
15
10
5
0
meetings
8-10
11-15
16-20
21-30
31-46
participants

Table 11A: Mothers' Participation in Community Meetings by Ethnicity (3 groups)

Ethnicity of Mother		How regularly do you participate in community meetings?			Total
		Not Attend	Not Regularly Attend	Regularly Attend	
Minority	n	18	92	122	232
	%	7.8%	39.7%	52.6%	100.0%
Kinh	n	34	73	53	160
	%	21.3%	45.6%	33.1%	100.0%
Total	n	52	165	175	392
	%	13.3%	42.1%	44.6%	100.0%

Table 11B: Mothers' Participation in Community Meetings by Ethnicity (2 groups)

Ethnicity of Mother		How regularly do you participate in community meetings?		Total
		Not Attend or Not Regularly Attend	Regularly Attend	
Minority	n	110	122	232
	%	47.4%	52.6%	100.0%
Kinh	n	107	53	160
	%	66.9%	33.1%	100.0%
Total	n	217	175	392
	%	55.4%	44.6%	100.0%

Table 12A: Characteristics of Mothers, Husbands, and Children by Community Meeting Attendance (% unless otherwise specified)

	Regular	Irregular or Not At All
Age of mother (% >= 20)	95.2	96.7
Ethnicity of mother (% minority)	69.2	68.1
Occupation of mother (% farming)	84.7	77.5
% Illiteracy among mothers	49.5	57.5
% Living with husband	99.5	100.0
Ethnicity of father (% minority)	70.1	68.1
Occupation of father (% farming)	81.0	66.9
% Illiteracy among fathers	25.1	31.0
% having 3 or more living children	43.8	58.3
Average number of living children	2.61*	2.99*

* $p < 0.05$

Table 12B: Characteristics of Mothers, Husbands, and Children by Community Meeting Attendance and Ethnicity (% unless otherwise specified)

Characteristic	Minority		Kinh	
	Regularly	Not Regularly and Not Attend	Regularly	Not Regularly and Not Attend
Mothers' age (n)	**114**	**102**	**53**	**105**
< 20	7.9	5.9	0.0	0.0
20-34	78.9	84.3	81.1	80.0
35+	13.2	9.8	18.9	20.0
Mothers' schooling (n)	**122**	**110**	**54**	**107**
No schooling	73.0	82.7	1.9	2.8
Prim. & secondary	23.8	15.5	77.8	64.5
High secondary+	3.3	1.8	20.4	32.7
Mothers' work (n)	**122**	**110**	**53**	**107**
Farming	99.2	97.3	49.1	34.6
Marital status (n)	**123**	**110**	**53**	**107**
Living with husband	99.2	100.0	100.0	100.0
Children's ages (n)	**122**	**110**	**52**	**107**
0-5 months	35.2	40.0	23.1	27.1
6-11 months	19.7	22.7	26.9	22.4
12-17 months	27.0	18.2	25.0	28.0
18-23 months	18.0	19.1	25.0	22.4
Children's gender (n)	**122**	**110**	**54**	**106**
Female	48.4	50.9	51.9	46.2
Husbands' ethnicity (n)	**121**	**110**	**52**	**106**
Kinh	0.0	0.9	98.1	99.1
Pakoh and others	10.7	6.4	0.0	0.0
Van Kieu	89.3	93.6	1.9	0.9
Husbands' schooling (n)	**122**	**109**	**53**	**105**
No schooling	40.2	46.8	0.0	1.0
Prim. & secondary	55.7	45.0	67.9	67.6
High secondary+	4.1	8.3	32.1	31.4
Husbands' work (n)	**122**	**110**	**53**	**105**
Farming	95.1	89.1	42.7	21.0*
# Living children (n)	**121**	**110**	**54**	**106**
1	25.6	23.6	25.9	27.4
2-3	39.7	40.0	61.1	66.0
4+	34.7	36.4	13.0	6.6
Mean (SD)	2.94 (1.74)	3.04 (1.76)	2.13 (0.97)	2.21 (1.12)

n=number (i.e., denominator); * p< .05 (baseline vs. endline)Table 13A: Reported Practices and Knowledge vs. Community Meeting Attendance (% unless otherwise noted)

Table 13A: Reported Practices and Knowledge vs. Community Meeting Attendance by Ethnicity (% unless otherwise noted)

Indicators	Minority			Kinh		
	Attend regularly (1)	Not attend & Attend but NOT regularly (2)	Prevalence Ratio (1)/(2)	Attend regularly (3)	Not attend & Attend but NOT regularly (4)	Prevalence Ratio (3)/(4)
Antenatal						
≥3 Antenatal care visits	77.8 (135)	56.9 (123)	1.37 (1.14-1.63)*	96.5 (57)	91.4 (70)	1.06 (0.97-1.15)
# Antenatal visits (mean)	3.07 (135)	2.41 (123)	P <0.05	4.26 (57)	3.97 (70)	P >0.05
TT2	93.0 (100)	88.6 (79)	1.05 (0.95-1.16)	100.0 (58)	95.5 (66)	1.05 (0.99-1.10)
Using iron pills	92.5 (133)	83.1 (124)	1.11 (1.01-1.22)*	100.0 (60)	100.0 (74)	Not calculated
Using iron pills ≥3 months	78.2 (133)	56.1 (123)	1.39 (1.16-1.67)*	90.0 (60)	89.2 (74)	1.01 (0.90-1.13)
Know 2+ danger signs: pregnancy	81.5 (135)	68.8 (125)	1.18 (1.03-1.37)*	86.7 (60)	71.6 (74)	1.21 (1.02-1.44)**
Know 3+ danger signs: pregnancy	56.3 (135)	47.2 (125)	1.19 (0.94-1.51)	45.0 (60)	40.5 (74)	1.11 (0.75-1.64)
Delivery						
Give birth at health facility	42.2 (135)	40.8 (125)	1.04 (0.78-1.38)	95.0 (60)	100.0 (74)	0.95 (0.90-1.01)
Deliver by trained birth attendant	45.9 (135)	42.4 (125)	1.08 (0.82-1.43)	96.7 (60)	100.0 (74)	0.97 (0.92-1.01)
Receive clean delivery kit	67.9 (78)	35.6 (73)	1.91 (1.35-1.69)*	66.7 (3)	(0)	Not calculated
Use CDK – if received CDK	100.0 (53)	96.0 (25)	1.04 (0.96-1.13)	100.0 (2)	(0)	Not calculated
Use CDK at non-facility deliveries	67.9 (78)	32.4 (74)	2.10 (1.46-3.01)*	66.7 (3)	(0)	Not calculated
Use components of CDK: Sheet	90.6 (53)	91.7 (24)	0.99 (0.85-1.15)	100.0 (2)	(0)	Not calculated
Use components of CDK: Soap	71.7 (53)	79.2 (24)	0.91 (0.69-1.18)	100.0 (2)	(0)	Not calculated
Use components of CDK: Razor blade	98.1 (53)	87.5 (24)	1.12 (0.96-1.31)	100.0 (2)	(0)	Not calculated
Use components of CDK: Thread	94.3 (53)	83.3 (24)	1.13 (0.94-1.37)	100.0 (2)	(0)	Not calculated
Use components of CDK: Cord bandage	64.2 (53)	66.7 (24)	0.96 (0.68-1.36)	100.0 (2)	(0)	Not calculated
Clean cord cut: CDK or clean instruments	67.9 (78)	36.5 (74)	1.86 (1.33-2.61)*	100.0 (2)	(0)	Not calculated
Clean delivery: Facility- or clean home-based	81.1 (132)	61.8 (123)	1.31 (1.12-1.54)*	100.0 (58)	100.0 (74)	Not calculated
Know 2+ danger signs: delivery	50.4 (135)	50.4 (125)	1.00 (0.79-1.27)	55.0 (60)	44.6 (74)	1.23 (0.88-1.74)
Know 3+ danger signs: delivery	22.2 (135)	13.6 (125)	1.63 (0.95-2.81)	16.7 (60)	18.9 (74)	0.88 (0.42-1.84)
Newborn						
Immediate breastfeeding	95.6 (135)	88.6 (123)	1.08 (1.00-1.16)	93.3 (60)	90.5 (74)	1.03 (0.93-1.14)
Prelacteal feeding	3.7 (135)	2.4 (123)	1.52 (0.37-6.22)	30.0 (60)	12.2 (74)	2.47 (1.20-5.09)*
Discard colostrum	14.1 (135)	9.8 (123)	1.44 (0.73-2.85)	6.7 (60)	15.1 (73)	0.44 (0.15-0.32)*
Delay newborn bath	80.8 (78)	62.2 (74)	1.30 (1.06-1.60)*	100.0 (3)	(0)	
Weigh newborn within 1 day	67.4 (135)	44.8 (125)	1.51 (1.20-1.89)*	96.7 (60)	100.0 (74)	0.97 (0.92-1.01)

Indicators	Minority			Kinh		
	Attend regularly (1)	Not attend & Attend but NOT regularly (2)	Prevalence Ratio (1)/(2)	Attend regularly (3)	Not attend & Attend but NOT regularly (4)	Prevalence Ratio (3)/(4)
Know 2+ danger signs: NB immediate	44.4 (135)	35.2 (125)	1.26 (0.93-1.71)	66.7 (60)	44.6 (74)	1.50 (1.10-2.04)*
Know 3+ danger signs: NB immediate	16.3 (135)	6.4 (125)	2.55 (1.18-5.51)*	30.0 (60)	16.2 (74)	1.85 (0.97-3.53)
Know 2+ danger signs: NB <7 days	60.7 (135)	45.6 (125)	1.33 (1.05-1.68)*	84.7 (59)	79.7 (74)	1.06 (0.91-1.25)
Know 2+ danger signs: NB <7 days	35.6 (135)	18.4 (125)	1.93 (1.25-2.98)*	50.8 (59)	55.4 (74)	0.92 (0.66-1.27)
Postpartum						
Postnatal home visit within 7 days	55.6 (135)	31.2 (125)	1.78 (1.32-2.41)*	71.7 (60)	65.8 (73)	1.09 (0.87-1.37)
Postnatal care by 7 days: Fac. del. or home visit	72.6 (135)	56.0 (125)	1.30 (1.08-1.56)*	98.3 (60)	100.0 (73)	0.98 (0.95-1.02)
Mother received postpartum vitamin A	53.8 (132)	46.0 (124)	1.17 (0.91-1.50)	84.2 (57)	80.3 (71)	1.05 (0.89-1.23)
Know 2+ danger signs: postpartum mothers	40.7 (135)	22.4 (125)	1.82 (1.24-2.67)*	38.3 (60)	45.9 (74)	0.83 (0.56-1.25)
Know 3+ danger signs: postpartum mothers	12.6 (135)	4.8 (125)	2.62 (1.07-6.44)*	10.0 (60)	14.9 (74)	0.67 (0.26-1.71)
Child						
Exclusive breastfeeding: children $\leq$ 4 months	57.1 (28)	36.4 (33)	1.57 (0.90-2.73)	57.1 (7)	58.3 (12)	0.98 (0.44-2.18)
Exclusive breastfeeding: children $\leq$ 6 months	45.7 (46)	28.9 (45)	1.58 (0.91-2.76)	58.3 (12)	60.0 (20)	0.97 (0.54-1.77)
Complementary feeding: 3+ food groups	46.4 (84)	44.9 (78)	1.04 (0.74-1.45)	100.0 (46)	75.9 (54)	1.32 (1.13-1.53)*
Complementary feeding: 4 food groups	13.1 (84)	15.4 (78)	0.85 (0.40-1.82)	87.0 (46)	63.0 (54)	1.38 (1.09-1.74)*
Complementary feeding: carbohydrate	93.3 (89)	96.2 (79)	0.97(0.90-1.04)	100.0 (46)	96.3 (54)	1.04 (0.99-1.09)
Complementary feeding: protein	65.2 (89)	62.0 (79)	1.05 (0.84-1.32)	100.0 (46)	87.0 (54)	1.15 (1.04-1.27)*
Complementary feeding: fat	27.0 (89)	34.2 (79)	0.79 (0.50-1.25)	93.5 (46)	63.0 (54)	1.49 (1.19-1.85)*
Complementary feeding: micronutrient	39.3 (89)	35.4 (79)	1.11 (0.75-1.65)	93.5 (46)	83.3 (54)	1.12 (0.97-1.29)
2+ meals/day: children 6-9 months	100.0 (24)	100.0 (18)	Not calculated	100.0 (11)	100.0 (9)	Not calculated
3+ meals/day: children 10-12 months	100.0 (3)	81.1 (11)	1.22 (0.93-1.62)	66.7 (6)	75.0 (8)	0.89 (0.45-1.78)
3+ meals/day: children 13-24 months	89.3 (56)	95.8 (48)	0.93 (0.84-1.04)	100.0 (28)	91.7 (36)	1.09 (0.99-1.20)
Malnutrition (WAZ < -2)	40.2 (122)	39.8 (108)	1.01 (0.73-1.39)	13.5 (52)	9.4 (106)	1.43 (0.58-3.54)
Severe Malnutrition (WAZ < -3)	12.3 (122)	8.3 (109)	1.49 (0.68-3.27)	0.00 (52)	0.00 (107)	Not calculated
Malnutrition (mean WAZ [SD])	-1.71 ±1.10 (122)	-1.67 ±1.06 (109)	P >0.05	-0.72 ±1.09 (52)	-0.77 ±1.13 (107)	P >0.05
Know 2+ danger signs: children <24 mos	77.8 (135)	75.2 (125)	1.03 (0.90-1.18)	79.7 (59)	82.4 (74)	0.97 (0.82-1.14)
Know 3+ danger signs: children <24 mos	37.0 (135)	24.8 (125)	1.49 (1.03-2.18)*	40.7 (59)	40.5 (74)	1.00 (0.66-1.52)

* p<0.05, **Not significant with Continuity correction

Table 13B: Reported Practices and Knowledge by Community Meeting Attendance (Logistic Regression)

Indicator	Odds Ratio (Regular vs. Non-Regular Attendance at Community Meeting)
Antenatal	
≥3 Antenatal care visits	1.82 (1.05-3.14)*
TT2	1.94 (0.64-5.90)
Using iron pills	3.12 (1.12-8.74)*
Using iron pills ≥3 months	2.04 (1.13-3.67)*
Know 2+ danger signs: pregnancy	1.99 (1.20-3.29)*
Know 3+ danger signs: pregnancy	1.37 (0.88-2.13)
Delivery	
Give birth at health facility	0.78 (0.47-1.29)
Deliver by trained birth attendant	0.92 (0.55-1.53)
Receive clean delivery kit	3.28 (1.55-6.95)*
Use CDK – if received CDK	9E+007 (0.00-.)
Use CDK at non-facility deliveries	4.05 (1.88-8.71)*
Clean cord cut: CDK or clean instruments	3.44 (1.62-7.28)*
Clean delivery: Facility- or clean home-based	2.49 (1.28-4.85)*
Know 2+ danger signs: delivery	0.99 (0.64-1.52)
Know 3+ danger signs: delivery	1.24 (0.69-2.24)
Newborn	
Immediate breastfeeding	2.11 (0.93-4.81)
Prelacteal feeding	2.47 (1.15-5.31)*
Discard colostrum	0.91 (0.49-1.70)
Delay newborn bath	2.82 (1.27-6.26)*
Weigh newborn within 1 day	5.29 (2.27-12.33)*
Know 2+ danger signs: NB immediate	1.73 (1.10-2.71)*
Know 3+ danger signs: NB immediate	2.23 (1.14-4.39)*
Know 2+ danger signs: NB <7 days	1.37 (0.85-2.21)
Know 3+ danger signs: NB <7 days	1.46 (0.88-2.41)
Postpartum	
Postnatal home visit within 7 days	2.51 (1.57-4.00)*
Postnatal care by 7 days: Fac. del. or home visit	1.97 (1.11-3.52)*
Mother received postpartum vitamin A	1.53 (0.94-2.51)
Know 2+ danger signs: postpartum mothers	1.41 (0.88-2.26)
Know 3+ danger signs: postpartum mothers	1.31 (0.62-2.80)
Child	
Exclusive breastfeeding: children ≤ 4 months	6.79 (1.81-25.45)*
Exclusive breastfeeding: children ≤ 6 months	3.81 (1.49-9.76)*
Complementary feeding: 3+ food groups	1.84 (0.99-3.43)
Complementary feeding: 4 food groups	1.78 (0.84-3.79)
Complementary feeding: carbohydrate	0.42 (0.12-1.52)
Complementary feeding: protein	1.81 (0.94-3.49)
Complementary feeding: fat	1.41 (0.78-2.55)
Complementary feeding: micronutrient	1.47 (0.76-2.85)
Malnutrition (WAZ < -2)	1.09 (0.68-1.75)
Severe Malnutrition (WAZ < -3)	1.66 (0.68-4.03)
Know 2+ danger signs: children <24 mos	1.06 (0.64-1.75)
Know 3+ danger signs: children <24 mos	1.28 (0.81-2.03)

* $p<0.05$

Table 14: Quality of Community Meeting in Phase 3 Communes by Quarter [% (n)]

Skill	Quarter						Total
	Jul-Sep '05	Oct-Dec '05	Jan-Mar '06	Apr-Jun '06	Jul-Sep '06	Oct '06-Sep '07	
Booster PD: Why?	43 (7)	48 (21)	60 (10)	52 (23)	100 (6)	67 (12)	**57 (79)**
Booster PD: How?	43 (7)	67 (21)	60 (10)	46 (22)	100 (6)	58 (12)	**59 (78)**
New PD: Why?	78 (9)	33 (21)	56 (9)	56 (25)	67 (6)	62 (13)	**54 (83)**
New PD: How?	67 (9)	48 (21)	56 (9)	52 (25)	67 (6)	54 (13)	**54 (83)**
Share messages	80 (10)	95 (21)	90 (10)	93 (27)	100 (6)	100 (13)	**93 (87)**
Use PDI findings	57 (7)	17 (18)	25 (8)	23 (22)	50 (6)	31 (13)	**28 (74)**
Discuss difficulties	63 (8)	63 (19)	60 (10)	69 (26)	83 (6)	85 (13)	**70 (82)**
Practice >3 times	57 (7)	86 (21)	70(10)	64 (25)	67 (6)	85 (13)	**73 (82)**
"Bounce" question	13 (8)	29 (14)	20 (10)	5 (22)	33 (6)	15 (13)	**16 (73)**
Use pictures	88 (8)	94 (16)	80 (10)	96 (26)	100 (6)	100 (13)	**94 (79)**
Demonstrating	40 (5)	88 (16)	60 (10)	91 (23)	100 (6)	92 (13)	**84 (73)**
Role-play	43 (7)	88 (16)	67 (9)	75 (24)	100 (6)	69 (13)	**75 (75)**
Coach	43 (7)	81 (16)	50 (10)	65 (26)	83 (6)	62 (13)	**65 (78)**
Participation >60%	13 (8)	37 (19)	25 (8)	26 (23)	25 (4)	27 (11)	**27 (73)**
Total	**53 (107)**	**62 (260)**	**56 (133)**	**59 (339)**	**78 (82)**	**65 (178)**	**61 (1099)**

Table 15A: Reported Practices and Knowledge vs. Community Meeting Quality (% unless otherwise noted)

Indicators	Quality Good (n)	Quality Not Good (n)	Prevalence Ratio	p<0.05
Antenatal				
Pregnancy check-up 3+	86.4 (81)	89.7 (58)	0.96 (0.85-1.09)	No
# ANC visits (mean)	3.17	4.11		Yes
Receive TT vaccination	92.8 (69)	98.1 (54)	0.95 (0.88-1.02)	No
Use iron pills	95.2 (83)	98.3 (58)	0.97 (0.91-1.03)	No
Use iron pills for 3+ months	79.8 (84)	84.5 (58)	0.94 (0.81-1.10)	No
Know 3+ pregnancy DS	32.1 (84)	48.3 (58)	0.67 (0.44-1.00)	No
# pregnancy DS (mean)	2.03 (84)	2.45 (58)		No
Delivery				
Facility delivery	81.0 (84)	74.1 (58)	1.09 (0.91-1.31)	No
Home delivery (health worker)	0.0 (16)	13.3 (15)	Not calculated	No
Home delivery (self)	6.3 (16)	13.3 (15)	0.47 (0.05-4.65)	No
Have CDK	68.8 (16)	60.0 (15)	1.15 (0.68-1.95)	No
Use CDK (if have CDK)	100.0% (11)	100.0 (9)	Not calculated	No
Use CDK (if home delivery)	68.8 (16)	60.0 (15)	1.15 (0.68-1.95)	No
Using items of CDK:				
Sheet	83.3 (12)	100.0 (9)	0.83 (0.65-1.07)	No
Soap	58.3 (12)	100.0 (9)	0.58 (0.36-0.94)	No
Blade	100.0% (11)	100.0 (9)	Not calculated	No
Thread	72.7 (11)	100.0 (9)	0.73 (0.51-1.04)	No
Bandage	41.7 (12)	33.3 (9)	1.25 (0.40-3.91)	No
Know 3+ DS during labor	15.7 (84)	12.1 (58)	1.30 (0.55-3.05)	No
# labor DS (mean)	1.39 (84)	1.45 (58)		No
Newborn				
Drying the baby right after birth	68.8 (16)	93.3 (15)	0.74 (0.52-1.05)	No
Warm by clothes, blanket, fire	100.0 (16)	100.0 (15)	Not calculated	No
Delay first bath	68.8 (16)	80.0 (15)	0.86 (0.57-1.30)	No
Bath baby in warm water	93.3 (15)	100.0 (15)	0.93 (0.82-1.07)	No
NB weighed on day 1	82.1 (84)	86.2 (58)	0.95 (0.83-1.10)	No
Immediate breastfeeding	91.6 (83)	87.9 (58)	1.04 (0.93-1.17)	No
No prelacteal feeding	94.0 (84)	77.2 (57)	1.22 (1.05-1.42)	Yes
Colostrum discarded	13.1 (84)	9.1 (55)	1.44 (0.53-3.92)	No
Know 3+ immediate NB DS	17.9 (84)	19.0 (58)	0.94 (0.47-1.90)	No
# immediate NB DS (mean)	1.24 (84)	1.49 (58)		No
Know 3+ NB DS in week 1	38.1 (84)	44.8 (58)	0.85 (0.57-1.26)	No
# NB DS in week 1 (mean)	2.20 (84)	2.45 (58)		No
Postpartum				
Postpartum home visit by 7 d	58.5 (82)	67.2 (58)	0.87 (0.67-1.12)	No
Vitamin A within 1 month	66.2 (77)	73.7 (57)	0.90 (0.72-1.12)	No
Know 3+ postpartum DS	8.4 (83)	10.3 (58)	0.82 (0.29-2.30)	No
# postpartum DS (mean)	1.19 (83)	1.26 (58)		No
Child				
BF when child has diarrhea	97.1 (34)	100.0 (19)	0.97 (0.92-1.03)	No
Know 3+ child <2 DS	38.6 (83)	33.9 (56)	1.14 (0.72-1.79)	No
# child <2 DS (mean)	1.32 (83)	2.34 (58)		No

Table 15B: Reported Practices and Knowledge by Community Meeting Quality (Logistic Regression)

Indicators	Odd Ratio of PD performance (Good / Not Good)
Antenatal	
≥3 Antenatal care visits	0.46 (0.11-1.94)
TT2	0.00 (0.00-.)
Using iron pills	0.00 (0.00-.)
Using iron pills ≥3 months	1.10 (0.38-3.13)
Know 2+ danger signs: pregnancy	0.64 (0.26-1.60)
Know 3+ danger signs: pregnancy	0.34 (0.15-0.80)*
Delivery	
Give birth at health facility	2.08 (0.74-5.86)
Deliver by trained birth attendant	1.50 (0.54-4.15)
Receive clean delivery kit	1.29 (0.15-10.97)
Use CDK at non-facility deliveries	1.29 (0.15-10.97)
Clean cord cut: CDK or clean instruments	1.29 (0.15-10.97)
Clean delivery: Facility- or clean home-based	1.33 (0.23-7.83)
Know 2+ danger signs: delivery	0.73 (0.33-1.62)
Know 3+ danger signs: delivery	0.84 (0.27-2.59)
Newborn	
Immediate breastfeeding	1.50 (0.46-4.87)
Prelacteal feeding	**
Discard colostrum	1.43 (0.47-4.41)
Delay newborn bath	0.59 (0.09-3.97)
Weigh newborn within 1 day	0.40 (0.04-3.98)
Know 2+ danger signs: NB immediate	0.64 (0.29-1.45)
Know 3+ danger signs: NB immediate	0.92 (0.33-2.60)
Know 2+ danger signs: NB <7 days	0.56 (0.22-1.41)
Know 3+ danger signs: NB <7 days	0.96 (0.41-2.25)
Postpartum	
Postnatal home visit within 7 days	**
Postnatal care by 7 days: Fac. del. or home visit	0.96 (0.28-3.27)
Mother received postpartum vitamin A	0.53 (0.20-1.37)
Know 2+ danger signs: postpartum mothers	0.75 (0.33-1.69)
Know 3+ danger signs: postpartum mothers	0.50 (0.12-2.00)
Child	
Exclusive breastfeeding: children ≤ 4 months	1E+017 (0.00-.)
Exclusive breastfeeding: children ≤ 6 months	0.30 (0.02-6.04)
Complementary feeding: 3+ food groups	1.83 (0.40-8.36)
Complementary feeding: 4 food groups	1.50 (0.32-7.08)
Complementary feeding: carbohydrate	7.36 (0.60-90.18)
Complementary feeding: protein	0.77 (0.19-3.08)
Complementary feeding: fat	2.11 (0.53-8.43)
Complementary feeding: micronutrient	2.32 (0.61-8.80)
Malnutrition (WAZ < -2)	1.26 (0.53-2.97)
Severe Malnutrition (WAZ < -3)	1.69 (0.17-17.23)
Know 2+ danger signs: children <24 mos	0.55 (0.19-1.55)
Know 3+ danger signs: children <24 mos	1.15 (0.51-2.58)

* p<0.05 ** Model is not appropriate since the linearity of relation between independent variables and log odds of dependent variable is rejected.

Table 16: Summary Conclusions by Indicator and Domain Studies (shaded cells represent scope and conclusions from this evaluation)

Parameter	Indicator	Domain Studied	
		Community Meeting	PD-Plus Approach
Acceptability	Mothers' attendance and active participation	High	High
Feasibility	Quality of Guides' conduct of PD inquiries	–	Medium
Quality	Quality of Guides' use of other facilitation skills	High	–
Effect	Mothers' reported use of interventions	High	Medium
Sustainability	Quality of Guides' facilitation skills after intensive phase	Medium	High
	Mothers' reported use of interventions and Project endline, stratified by Phase	High	–
	Hamlet, commune, district and provincial partners' sustaining Project strategies	Medium	–

Annex 1: Household Survey Questionnaire

Questionnaire

Quang Tri Provincial Health Service Save the Children/US

Pictorial household Questionnaire
Home based care for mothers and children

Name of Mother: ……..… Age: …….....

Ethnicity: 1. Kinh 2. PaKoh 3. Van Kieu 4. Others

Education (grade):……..

Occupation: 1. Farming 2. Free trade 3. Government staff 4. Others

Economic: 1. Rich 2. Above average 3. Average 4. Poor 5. Hungry

Name of the youngest child: …….. Date of birth…….

Number of children:……

Hamlet: …… Commune:…….....

District: ..……

ANC check - ups during pregnant period

1. Did you get ANC check-ups during this pregnancy?

1. Yes 2. No

2. How many times of ANC check-up did you get?

1. Once 2. Twice 3. 3 times or more 4. Do not remember

3. Where did you get ANC check-ups? (this is multi-choice)

1. Commune health center 2. Outreach at hamlet 3. Others:……..

4. Who provided ANC care for you?

1. Commune doctor 2. Commune assistant doctor 3. Commune midwife 4. Commune nurse
5. Others:…….

Having iron/folate tablets during pregnant period

5. Did you receive iron pills during pregnancy?

1. Yes 2. No

6. Did you use iron/folate tablets in this pregnancy?

1. Yes 2. No

7. How often did you use the iron/folate tablet?

1. Everyday 2. Every two day 3. Use when remember 4. Do not remember

8. How long did you use the iron/folate tablet?

1. Less than 3 months 2. 3 months or more 3. Do not remember

Got TT during pregnancy

9. How many injections for tetanus did you get during this pregnancy?

1. Once 2. Twice 3. None

10. Did you get any other tetanus injection?

1. Yes 2. No

Select places for delivery

11. Where did you give birth to this infant?

1. CHC 2. Regional clinic 3. DHC 4. Provincial/Central hospital 5. At home 6. In the forest/farm

Birth attendant

12. When you gave birth, who was the birth attendant (the person did the cord cutting)?

1. Myself 2. Family members / Neighbor 3. HHW 4. Nurse

5. Midwive 6. Assistant doctor 7. Doctor

Using the clean delivery kit at birth

13. Were you provided the clean delivery kit for the birth?

1. Yes 2. No

14. What does the CDK consist of?

1. Blaze 2. Strings 3. Gauze 4. Plastic sheet 5. Soap 6. Others

15. Did you use the clean delivery kit in this pregnancy?

1. Yes 2. No

Keep newborn warm at birth

16. Right after delivery, did you lay the baby beside you?

1. Yes 2. No

17. When did you first bathe the baby?

1. Within 1 day 2. From the 2nd day

Giving the baby first Breastfeeding

18. When did you give the baby the first breastfeeding?

1. Within 1 hour after delivery 2. After 1 hour but within 1 day after delivery
3. Over 1 day after delivery

Giving exclusive breastfeeding to the baby

19. When did you first feed the baby foods or liquids other than breast milk?

1. Within 1 month 2. After 1 month but within 4 month
3. After 4 month but within 6 month 4. Not yet

20. What have you fed the baby since this time of yesterday (all the foods and drinking including breast milk?

1. Breast milk 2. Milk 3. Rice powder/ rice/rice soup/corn/cassava
4. Processed nutritious powder5. Sugar 6. Meat/fish/egg/crab/shrimp
7. Oil/fat/peanut/sesame 8. Vegetable/vegetable boiled water 9. Juice/fruits
10. Others

Hamlet health worker visited after delivery

21. When was the first time the hamlet health worker visited you after delivery?

1. Within 3 days after delivery 2. After 3 days but before 7 days after delivery
3. After 7 days but before 28 days after delivery 4. Over 28 days after delivery
5. Did not visit

22. What did the HHW do when he visited you?

1. Examined you 2. Examined your child 3. Provided iron pills
4. Provided vitamin A 5. Counseled about care for you and your child
6. Others:……

Commune health worker/midwife visited after delivery

23. When was the first time the commune health worker/midwife visited you after delivery?

1. Within 3 days after delivery 2. After 3 days but before 7 days after delivery

3. After 7 days but before 28 days after delivery 4. Over 28 days after delivery

5. Did not visit

24. What did the HHW do when he visited you?

1. Examined you 2. Examined your child 3. Provided iron pills

4. Provided vitamin A 5. Counseled about care for you and your child

6. Others:……

Took vitamin A after delivery

25. Did you receive vitamin A after delivery?

1. Yes 2. No

26. Did you take vitamin A after delivery?

1. Yes 2. No

27. Did you attend any community meetings on Home Care for Mother and Child?

1. Yes 2. No

28. How many community meetings on Home Care for Mother and Child did you attend?

1. Number of meetings attended:.....

2. Do not remember

29. Do you know how many meetings happened so far in your hamlet?

1. Number of meetings attended:.....

2. Do not remember

30. Do you think those meetings helpful?

1. Yes 2. No 3. Do not know, do not answer

31. Why are those meetings helpful? (this is multi-choice)

1. People can learn knowledge about maternal and child care

2. People can meet each others

3. Others:……

32. Why are those meetings not helpful? (this is multi-choice)

1. People do not have time

2. People live far away

3. Meeting content is not appropriate to community

4. Recommended practices in those meetings are difficult to follow

5. Others:…….

33. In your opinion, when a woman is pregnant or in labor, what signs indicate that she needs to seek care? (This is multi-choice)

1) Spotting or bleeding from the vagina during pregnancy.
2) Profuse or persistent bleeding from vagina during delivery.
3) Severe headaches or stomachaches.
4) Severe or persistent vomiting.
5) Other: _____
6) Do not know, do not answer

34. In your opinion, after delivery, what signs indicate that she needs to seek care? (This is multi-choice)

1) Severe bleeding
2) Headache
3) Convulsion
4) Severe and persistent vomiting
5) Other: _____
6) Do not know, do not answer

35. In your opinion, within 1 month after delivery, what signs indicate that the baby needs to send for medical care (this is multi-choice)

1) Sucking difficulty
2) Breathing problems
3) Redness or discharge around cord
4) Persistent vomiting with abdominal distension
5) Other: _____
6) Do not know, do not answer

36. What can you do for a newborn not breathing at birth?

1) Stimulate the baby to breathe by drying the baby with a towel
2) Removes materials in the baby mouth
3) Provide mouth-to-mouth breathing
4) Other: _____
5) Do not know, do not answer

Annex 2: Postpartum Surveillance Check-List

Quang Tri Province Health Service

Cứu trợ Trẻ em/Mỹ

Home care for mother and child monitoring card

Village: ……Commune: ……District: ……..Interview date……...……

Mother's name:……Ethnic group:…….. Name of the new baby: ……Date of birth :.....The distance from mother's house to CHC: .....km

All the below questions on the new baby

1. ***Did you receive any pregnant check up during pregnancy?***

   ☐ Yes ☐ No ☐ don't know/don't remember

2. ***How many time of check- up did you receive?*** #:…… ☐ Don't remember

3. ***Did you receive iron pill during pregnancy ?***

   ☐ Yes ☐ No ☐ don't know/ don't remember

4. ***How long did you take iron pill l?*** How many months did you take iron pill: #…… ☐ Don't remember

5. ***How many TT shots did you receive during pregnancy ?***

   ☐ One shot ☐ 2 shots ☐ no ☐ don't know/don't remember

6. ***There are any extra TT shots did you receive before this pregnancy?***

   ☐ Yes ☐ no ☐ don't remember

7. ***Where did you give birth your baby ?*** Place of birth …….

8. ***Who help you when delivery ?***

   ☐ Did myself ☐ Family member/ neighborhood ☐ Health staff

   ☐ Nurse ☐ Mid wife ☐ Assistance doctor ☐ Doctor

9. Did you receive clean delivery kit during your this pregnancy ?

☐ Yes ☐ No ☐ don't know/don't remember

10. Did you use CDK for your delivery ? (The question for the mother who gave birth at home only)

☐ yes ☐ No ☐ Don't know

11. The baby was placed close with you or not right after delivery ?

☐ yes ☐ No ☐ don't remember

12. When did you take the first time bath for the baby after birth ?

☐ Within the first day after delivery ☐ Second day after delivery ☐ don't remember

13. When did you give baby the first breast feed after delivery?

☐ Within 1 hour after birth ☐ after 1 hour and within 1 day after birth

☐ More than 1 day ☐ Don't remember

14. From this time of yesterday up to now, did you give any foods or water excluded breast milk?

☐ yes ☐ no

15. When did the first home visit of health staff for postpartum care for both of you and your baby

The first day after delivery:……. ☐ did not visit

16. Did you receive vitamin A after birth ?

☐ yes ☐ No ☐ Don't know /don't remember

17. Did you take Vitamin A?

☐ yes ☐ No ☐ Don't know

Annex 3: Data Collection Form for Second Child

The first interview: The last trimester

Mother's name: Age: Ethnic: Education (Grade): Occupation:

Baby name (currently): Date of birth:

Village: Commune District:

Guide for interviewers and note takers (in summary **)**

- Some reminding note-takers need to be focusing ; The notes need to be detail as mush as possible
- Try in the best recording exactly what mothers said, avoid bias by interviewer's opinions, summary, translation, …
- Do not give any advices it's related with the contents of interview except the emergency case.
- Avoid giving comments or showing attitude on any responding

Questionnaires	Information of the last delivery (before this time)	Information about this pregnancy and currently baby	Why behaviors do not change or changed (The internal factors).	External factors	
				Support/Positive	Obstruct/Negative
Did you receive ANC during pregnancy?					
How many times did you have pregnancy check up?					
Where were you having pregnancy check up?					
Who gave pregnancy check up for you?					
Did you receive any Iron pill during pregnancy?					
Did you take it (Iron pill)					
If yes, what frequent did you take the iron pill?					
How many months did you take the pill?					
How many TT shots did you receive during pregnancy?					

Questionnaires	Information of the last delivery (before this time)	Information about this pregnancy and currently baby	Why behaviors do not change or changed (The internal factors).	External factors	
				Support/Positive	Obstruct/Negative
Where was you planned to come for delivery?					
Have you received CDK yet?					
According to you, what the signs should be considered as dangerous which have to transfer to health facilities immediately?					

The second interview: Within one month after delivery

Mother's name: Age: Ethnic: Education (Grade): Occupation:

Baby name (currently): Date of birth:

Village: Commune District:

Guide for interviewers and note takers (in summary **)**

- Some reminding note-takers need to be focusing ; The notes need to be detail as mush as possible
- Try in the best recording exactly what mothers said, avoid bias by interviewer's opinions, summary, translation, …
- Do not give any advices it's related with the contents of interview except the emergency case.
- Avoid giving comments or showing attitude on any responding

Questionnaires	Information of the last delivery (before this time)	Information about this pregnancy and currently baby	Why behaviors do not change or changed (The internal factors).	External factors	
				Support/Positive	Obstruct/Negative
How many times did you have pregnancy check up?					
Where did you give birth?					
There were any one help you during your delivery?					
Did you receive CDK?					
Did you use the kit for your delivery?					
There were any abnormal happened during your labor? (If yes) how did you deal with the problems?					
Did you place your newborn close with you immediate after birth?					
When did you take the first bath for your newborn after birth?					

Questionnaires	Information of the last delivery (before this time)	Information about this pregnancy and currently baby	Why behaviors do not change or changed (The internal factors).	External factors	
				Support/Positive	Obstruct/Negative
When did you give the first breast-feed to your newborn after birth?					
When the first home visit of community guider happen for postpartum care for both you and your newborn?					
When the first home visit of commune midwife happen for postpartum care for both you and your newborn?					
Did you receive vitamin A after delivery?					
Did you take the vitamin A?					
According to you, for the women who had just gave birth, what the signs should be considered as dangerous which have to transfer to health facilities immediately?					

Questionnaires	Information of the last delivery (before this time)	Information about this pregnancy and currently baby	Why behaviors do not change or changed (The internal factors).	External factors	
				Support/Positive	Obstruct/Negative
According to you, what the signs should be recognized as dangerous for one month baby which have to transfer to health facilities immediately?					
During a labor, what did you do if newborn can not breathe when just come out?					
Since this time of yesterday up to now, what the foods did you feed your baby?					
When did you start giving supplement foods to your baby?					

Information on community meetings on HCMC:

- Did you hear any thing about CMs?
- How many meetings did you attend? What were topics (of the meetings) you have remembered?
- Did you like those meetings? What the topics that you like most? What were you didn't like? Why? (The contents of meetings, the facilitation of CGs such as attitudes, skills, and practical purposes…)

- Do you want to continue attend the meetings?
- There are any things which you want to change in those meetings?

What's **helpful to you** when you participate in the CMs?	What were **not helpful**?
Who support/encourage your participation in CMs?	**Who obstruct** your participation in CMs?
What were support/encourage your participation in CMs? (time, works …)	What were obstacles on your participation? (time, works …)
What kind of people who always participate CMs in your village**?**	**What kind of people** who were not much participation the meetings**?**

The third interview: Four months after delivery

Mother's name: Age: Ethnic: Education (Grade): Occupation:

Baby name (currently): Date of birth:

Village: Commune District:

Guide for interviewers and note takers (in summary **)**

- Some reminding note-takers need to be focusing ; The notes need to be detail as mush as possible
- Try in the best recording exactly what mothers said, avoid bias by interviewer's opinions, summary, translation, …
- Do not give any advices it's related with the contents of interview except the emergency case.
- Avoid giving comments or showing attitude on any responding

Questionnaires	Information of the last delivery (before this time)	Information about this pregnancy and currently baby	Why behaviors do not change or changed (The internal factors).	External factors	
				Support/Positive	Obstruct/Negative
Since this time of yesterday up to now, what the foods did you feed your baby?					
When did you start giving supplement foods to your baby?					

Annex 4: Community Meeting Supervision Check-list

CHECKLIST FOR EVALUATING THE COMMUNITY MEETING

Hamlet:……..…… Commune…..…… District:……

Hamlet ethnicity:

Date of conducted community meeting:

Name of community guides:

Name of supervisor:

Topic of community meeting:

Participants	Pregnant women	
	Women with children under 2	
	Mothers / mothers in law of pregnant women and women with children under 2	
	Husbands of pregnant women and women with children under 2	
	Others	
	Total	

EVALUATION

Notice: Evaluator do not fill information or mark in to black box.

	Did not do	**Did do**	
		But not according standard	**According standard**
Preparation of community meeting:			
1. Preparation of materials for community meeting: pictures, dolls, etc.			
2. Preparation of location for CM.			
Introduction			
3. Put the participants at ease			
4. Introduce new participants.			
Step 1: Review the previous CM:			
5. Review the messages of the previous CM.			

6. Ask for old topic PD person			
- 6A. Ask old topic PD person "What did he/she do?"			
- 6B. Ask old topic PD person "Why did he/she do so?"			
- 6C. Ask old topic PD person "How was he/she able to do so?"			
7. If there is an old topic PD person, take note of her/him on the Community meeting journal.			
8. Find out the person who shared the health messages of the previous meeting with her neighbors.			
Step 2: Find out what the participants have experienced on the new topic			
9. Introduce the new topic.			
10. Find out the current practices relative the new topic.			
11. Ask for new topic PD person			
- 11A. Ask new topic PD person "What did he/she do?"			
- 11B. Ask new topic PD person "Why did he/she do so?"			
- 11C. Ask new topic PD person "How was he/she able to do so?"			
12. If there is a new topic PD person, take note of her/him on the Community meeting Journal.			
Step 3: Share what we have learned from trained health workers:			
13. Share what we have learned from trained health workers by using of the pictures.			
14. Demonstrate the home health behaviors.			
Step 4: Come to agreement what to do at home:			
15. Negotiate and come to agreement what to do at home:			
- 15A. Let participants choose pictures showing what they intend to do at home			
- 15B. Use findings of new topic PDI to persuade participants to put the behaviors that have not been chosen into practice at home			
16. Guide a discussion towards dealing with the difficulties or constraints participants may face during putting these messages into practice at			

home.			
17. Practice the home health behaviors.			
18. Summarize and encourage the participants to put health behaviors into practice at home.			
Step 5: Evaluation and planning for next community meeting:			
19. Evaluation:			
- 19A. Ask participants about what they have learnt.			
- 19B. Ask participants to give comments on good aspects.			
- 19C. Ask participants to give comments to make the meeting better.			
20. Planning for the next community meeting:			
- 20A. Time.			
- 20B. Location.			
- 20C. Participants.			
- 20D. Ask for help from participants.			

Use facilitation skills:			
- Positive attitude.			
- Polite respect.			
- Warm up (Put participants at ease).			
- Bouncing.			
- Probing...What.			
- Probing…Why.			
- Probing … How.			
- Clarify one's idea by using confirmatory question			
- Summarizing statement.			
- Using picture and model.			
- Demonstrating.			
- Role-playing.			
- Observing.			
- Coaching			
- Encouraging questioning.			
- Group working			

Number of attendants actively participated in the CM:……

Comments: *Supervisor fills all comments on the community meeting and gives suggestion about:*

Well-done items:

……
……
……
……
……

Improvement-needed items:

……
……
……
……
……

Other comments:

……
……
……
……
……

COMMUNITY MEETING JOURNAL

1. Date of community meeting: ……...……
2. Name of facilitator: .....……..
3. Name of supervisor (province/district/commune):...……
4. Activity: *(check in suitable box)*

   Interactive learning session at NERP:..…….....[ ]

   Community meeting on HCMC.....…. [ ]

5. Topic:.....……
6. Location: .....……
7. Participants:

Pregnant women	Women with children under 2	Mothers / mothers in law of pregnant women and women with children under 2	Husbands of pregnant women and women with children under 2	Others	Total

8. Information from booster PDI:

Name / Address	Good behaviors	Place	Time	Why to do	How was able to do

9. Information from new topic PDI:

Name	Behaviors	Place	Time	Why to do	How was able to do

Annex 5: Endline Household Survey Questionnaire

Code ☐☐-☐☐-☐☐-☐☐

District Comm. Village Household

Quang Tri Health Services

Questionnaire for interviewing mothers of children less than 24 months of age

(Interview mothers with child who born since May 31st 2005 up to now)

Introduction:
For each of the question, select only one appropriate answer, except one that is indicated that there probably several answers. Do not read the *italic* part when interviewing.
For the answer "Other _____", it is needed to write the specific answer on the designated line. If more room is needed, please write in the reverse side of the page and note the question that the answer is served for.

Quang Tri Province District _____
Commune _____ Hamlet _____

Date:_____/____/2002
Name of interviewers: 1_____2._____

Name of supervisor: _____

Introduction and consent
Hello, my name is _____ , I am working with the District health center of _____. We come here to explore the situation of MCH care of this community. We are very pleased if you are able to answer our questions on how you have taken care of yourself and your children while you were pregnant and took care of your children. Information that we gain through the interview will be helpful for us. The interview usually lasts from 30-40 minutes.
If the interviewee agree to continue → Ask following the questionnaire.
If the interviewee does not agree to continue → Stop the interview.

What is your name? (Ask mother and check with household registration book or ID card...) _____ How old are you? _____ DK [ ] What is your ethnic group: Van Kieu [ ] Pakoh [ ] Kinh [ ]	What's name of the your youngest child: _____ What's his/her DOB: _____/ _____/_____ Day Month Year How old is he/she (months) _____ What's Ethnic group: : Van Kieu [ ] Pakoh [ ] Kinh [ ]

Other [ ] _____	Other [ ] _____

Part 1. General information

C.84	What is the highest grade of education you have finished?	
	Don't know read and write	[ ]
	Know read and write	[ ]
	Elementary (1-5)	[ ]
	Secondary school (6-9)	[ ]
	High school (10-12)	[ ]
	Junior/Vocational school	[ ]
	College and above	[ ]
	DK	[ ]
	Do not answer	[ ]
C.85	What is your major job?	
	Farming	[ ]
	Small trade business	[ ]
	Government officer	[ ]
	Raising livestock	[ ]
	Other : _____	[ ]
	DK	[ ]
	Do not answer	[ ]
C.86	What is your marital status? (*Where's your husband?)*	
	Married, living with husband	[ ]
	Not married	[ ] → **Move to C.7**
	Divorced	[ ] → **Move to C.7**
	Widow	[ ] → **Move to C.7**
	Do not answer	[ ] → **Move to C.7**
C.87	What ethnic group does your husband belong to?	
	Van Kieu	[ ]
	Pakoh	[ ]
	Kinh	[ ]
	Other_____	[ ]
	DK	[ ]
	Do not answer	[ ]
C.88	What is the highest grade of education your husband has finished?	
	Can not read and write	[ ]
	Can read and write	[ ]
	Elementary (1-5)	[ ]
	Secondary school (6-9)	[ ]
	High school (10-12)	[ ]
	Junior/Vocational school	[ ]
	College and above	[ ]
	DK	[ ]
	Do not answer	[ ]

C.89	What is your husband's major job? Farming ..... Small trade business ..... Government officer ..... Raising livestock..... Other : _____ Do not know ..... Do not answer	 [ ] [ ] [ ] [ ] [ ] [ ] [ ]
C.90	How many people live in your household? (*Based on HH registration book*) Number of people..... Do not answer.....	 ____ persons 99 [ ]

Part 2. Information on MCH and newborn care

C.91	How many pregnancies have you been having? (*including abortion, miscarriage*) Number of pregnancies ..... Do not answer.....	 ____times 99 [ ]
C.92	How many births have you given? (*including deaths*) Number of birth ..... Do not answer.....	 ____time 99 [ ]
C.93	How many alive children do you have at present? Number of children..... Do not answer.....	 ____children 99 [ ]
C.94	When you were pregnant for this child, did you get antenatal care? Yes..... No ..... Do not answer.....	 4 [ ] 5 [ ] → **Move to C.16** 6 [ ] → **Move to C.16**
C.95	Do you have maternal care card? (*Check the card, if yes*) Yes..... Yes, but loss..... Do not have.....	 4 [ ] 5 [ ] 6 [ ]
C.96	How many times have you got ANC check? (*excluding examination at delivery*) Number of ANC check Do not remember..... Do not answer.....	 ____ times 98 [ ] 99 [ ]
C.97	Where did you get ANC check? Commune health center ..... District hospital ..... Provincial Hospital..... Outreach ANC service at village Other:_____ Do not remember..... Do not answer.....	 8 [ ] 9 [ ] 10 [ ] 11 [ ] 12 [ ] 13 [ ] 14 [ ]

C.98	Who performed the ANC check? *(this is a multi-choice)*	
	Health professional.....	[ ] → **Move to C.17**
	Traditional healer.....	[ ] → **Move to C.17**
	Traditional Birth Attendant (TBA).....	[ ] → **Move to C.17**
	Other_____	[ ] → **Move to C.17**
	Do not answer.....	[ ] → **Move to C.17**
C.99	Why didn't you get ANC check up? *(This is the multi-choice)*	
	Do not know the service.....	10 [ ]
	Avoidance.....	11 [ ]
	Ashamed.....	12 [ ]
	Far from the service.....	13 [ ]
	Do not have money.....	14 [ ]
	Husband does not agree.....	15 [ ]
	Parents do not agree.....	16 [ ]
	Other_____	17 [ ]
	Do not answer.....	18 [ ]
C.100	While you were pregnant with this child, did you receive tetanus shot?	
	Yes.....	[ ]
	No.....	[ ] → **Move to C.19**
	Do not remember/do not know.....	[ ] → **Move to C.20**
	Do not answer.....	[ ] → **Move to C.20**
C.101	How many TT shots did you get for this pregnancy?	
	Number of TT shots (check maternal card if the woman has the card).....	____times→ **Move to C.20**
	Do not remember.....	98 [ ] → **Move to C.20**
	Do not answer.....	99 [ ] → **Move to C.20**
C.102	Why didn't you get TT shots for the pregnancy of this child? *(This is the multi-choice)*	
	Do not know the service.....	[ ]
	Avoidance.....	[ ]
	Ashamed.....	[ ]
	Far from the service.....	[ ]
	Do not have money.....	[ ]
	Husband does not agree.....	[ ]
	Parents do not agree.....	[ ]
	Miss the service.....	[ ]
	Other_____	[ ]
	Do not answer.....	[ ]
C.103	Before this pregnancy, did you get tetanus vaccinated?	
	Yes.....	5 [ ]
	No.....	6 [ ]
	Do not know/Don't remember.....	7 [ ]
	Do not answer.....	8 [ ]

C.104	Did you take iron tablet *(drug to prevent anemia)* in this pregnancy? Yes..... No ..... Don't remember ..... Don't know..... Do not answer.....	 6 [ ] 7 [ ] → **Move to** Error! Reference source not found. 8 [ ] → **Move to** Error! Reference source not found. 9 [ ] → **Move to** Error! Reference source not found. 10 [ ] → **Move to** Error! Reference source not found.
C.105	Where did you get the iron tablets? CHC..... Hospital..... Village health worker ..... Self-purchase ..... Other_____ DK ..... Do not answer.....	 8 [ ] 9 [ ] 10 [ ] 11 [ ] 12 [ ] 13 [ ] 14 [ ]
C.106	How often did you use the iron tablets? One time for each day..... One time every two days ..... Use when remember ..... Other:_____ Don't remember ..... Don't know..... Do not answer.....	 8 [ ] 9 [ ] 10 [ ] 11 [ ] 12 [ ] 13 [ ] 14 [ ]
C.107	How long did you take the iron? Less than 3 months ..... 3 months and above..... Don't know..... Do not answer.....	 5 [ ] 6 [ ] 7 [ ] 8 [ ]
C.108	Where did you give birth to this child? CHC..... District hospital..... Provincial/central hospital..... At home ..... In the forest/farm ..... Other_____ Do not answer.....	 8 [ ] → **Move to C.46** 9 [ ] → **Move to C.46** 10 [ ] → **Move to C.46** 11 [ ] 12 [ ] 13 [ ] 14 [ ] → **Move to C.46**
C.109	What was the delivery place covered by? Nothing..... Clean nylon..... Other:_____ Do not remember..... Do not answer.....	 6 [ ] 7 [ ] 8 [ ] 9 [ ] 10 [ ]

C.110	When you gave birth, who stayed with you? *(This is the multi-choice)* Husband..... Children.....	 13 [ ]
	Mother (biological and in-law).....	14 [ ]
	Sisters (biological and in-law)	15 [ ]
	CHC's staff	16 [ ]
	Village health worker	17 [ ]
	Neighbor.....	18 [ ]
	TBA	19 [ ]
	Other_____	20 [ ]
	No one.....	21 [ ]
	Do not remember.....	22 [ ]
	Do not answer.....	23 [ ]
		24 [ ]
C.111	Who assisted the birthing process?	
	Health staff.....	6 [ ]
	Self- assisted	7 [ ]
	Other_____	8 [ ]
	Do not remember.....	9 [ ] → **Move to C.30**
	Do not answer.....	10 [ ] → **Move to C.30**
C.112	Did the birth assistant wash her hands before holding the baby?	
	Yes.....	6 [ ]
	No but wear gloves	7 [ ]
	No	8 [ ]
	Do not remember/ do not know.....	9 [ ]
	Do not answer.....	10 [ ]
C.113	Who cut the cord for the baby?	
	Health staff	6 [ ]
	Self-cut by Mother.....	7 [ ]
	Other_____	8 [ ]
	Do not remember.....	9 [ ] → **Move to C.32**
	Do not answer.....	10 [ ] → **Move to C.32**
C.114	Did the person who cut the cord wash her/his hands before cutting?	
	Yes.....	5 [ ]
	No	6 [ ]
	Do not remember/DK.....	7 [ ]
	Do not answer.....	8 [ ]
C.115	What was used for cutting cord?	
	Normal knife/scissors	9 [ ]
	Reaping-hook	10 [ ]
	Bamboo splints	11 [ ]
	Razor blade.....	12 [ ]
	Medical instruments	13 [ ]
	Other_____	14 [ ]
	Do not remember/ do not know.....	15 [ ] → **Move to C.34**
	Do not answer.....	16 [ ] → **Move to C.34**

C.116	Before being used for cutting the cord, how was the instruments cleaned? *(This is multi-choice)*	
	Boiled	9 [ ]
	Put on the flame	10 [ ]
	Burn in alcohol	11 [ ]
	Dip in the boiled water	12 [ ]
	Do nothing	13 [ ]
	Other_____	14 [ ]
	Do not know	15 [ ]
	Do not answer	16 [ ]
C.117	What was used to tie the cord?	
	Thread (in the Clean Delivery Kit)	7 [ ]
	Sewing thread	8 [ ]
	Jute fiber from jute bag	9 [ ]
	Other_____	10 [ ]
	Do not remember/DK	11 [ ]
	Do not answer	12 [ ]
C.118	What was the put on the cord stump after the cord was cut?	
	Iodine alcohol	9 [ ]
	Charcoal	10 [ ]
	Resin (liquid from tree)	11 [ ]
	Spider burned ash	12 [ ]
	Other_____	13 [ ]
	Nothing	14 [ ]
	Do not remember/DK	15 [ ]
	Do not answer	16 [ ]
C.119	After being cut, what was the cord bandaged with?	
	Medical bandage	8 [ ]
	Old clothes	9 [ ]
	Clean cloth	10 [ ]
	Other_____	11 [ ]
	Was not bandaged	12 [ ]
	Do not remember/DK	13 [ ]
	Do not answer	14 [ ]
C.120	Did you have CDK?	
	Yes	5 [ ]
	No	6 [ ] → **Move to C.40**
	Do not remember	7 [ ] → **Move to C.40**
	Do not answer	8 [ ] → **Move to C.40**
C.121	Did you use the CDK?	
	Yes	5 [ ]
	No	6 [ ] → **Move to C.40**
	Do not remember	7 [ ] → **Move to C.40**
	Do not answer	8 [ ] → **Move to C.40**

C.122	Which parts of the CDK did you use? *(This is multi-choice)* Nylon Soap Razor blade Thread Bandage Gloves Iodine Other _____ Do not remember Do not answer	 11 [ ] 12 [ ] 13 [ ] 14 [ ] 15 [ ] 16 [ ] 17 [ ] 18 [ ] 19 [ ] 20 [ ]
C.123	Right after expelled, was the baby dried? Yes No Do not remember/DK Do not answer	 5 [ ] 6 [ ] 7 [ ] 8 [ ]
C.124	After delivery, what did you use to keep the baby warm? *(This is multi-choice)* Baby's clothes Blanket Stay at the fireplace Other:_____ Do not remember/DK Do not answer	 7 [ ] 8 [ ] 9 [ ] 10 [ ] 11 [ ] 12 [ ]
C.125	Cancel	
C.126	When did you first bathe the baby? Right after birth/Cutting cord Within one day After one day Do not remember Do not answer	 6 [ ] 7 [ ] 8 [ ] 9 [ ] 10 [ ]
C.127	Did you bath the baby with warm or cold water? Warm water Cold water Do not remember Do not answer	 5 [ ] 6 [ ] 7 [ ] 8 [ ]
C.128	What did you mix with water to bath the baby? Soap Herb Other _____ Nothing Do not remember Do not answer	 7 [ ] 8 [ ] 9 [ ] 10 [ ] 11 [ ] 12 [ ]
C.129	Did anyone do health check for you within 7 days after delivery? Yes No Do not remember Do not answer	 5 [ ] 6 [ ] → **Move to C.48** 7 [ ] → **Move to C.48** 8 [ ] → **Move to C.48**

C.130	Who did the health check (at home)?	
	CHC health worker	9 [ ]
	Trained midwife	10 [ ]
	Village health worker	11 [ ]
	TBA	12 [ ]
	Mother (without professional skill)	13 [ ]
	Other_____	14 [ ]
	Do not remember	15 [ ]
	Do not answer	16 [ ]
C.131	Did you take vitamin A within **one month** after delivery?	
	Yes	5 [ ]
	No	6 [ ]
	Do not remember	7 [ ]
	Do not answer	8 [ ]
C.132	Cancel	
C.133	Cancel	
C.134	According to your opinion, when a woman is pregnant, what signs indicate that she is in danger and needs to seek care immediately? *(This is multi-choice)*	
	Vaginal bleeding	11 [ ]
	Severe headache	12 [ ]
	Edema in upper limbs and face	13 [ ]
	Convulsion	14 [ ]
	Fever	15 [ ]
	Painful feeling when urinating	16 [ ]
	Severe abdominal pain	17 [ ]
	Other:_____	18 [ ]
	DK	19 [ ]
	Do not answer	20 [ ]
C.135	According to your opinion, when a woman in a labors, what signs indicate that she is in danger and needs to seek care immediately? *(This is multi-choice).*	
	Labor lasts over a day	8 [ ]
	Fever	9 [ ]
	Convulsion	10 [ ]
	Fetus limb or placenta goes out first	11 [ ]
	Other:_____	12 [ ]
	DK	13 [ ]
	Do not answer	14 [ ]
C.136	According to your opinion, after delivery, what signs indicate that the mother is in danger and needs to seek care immediately? *(This is multi-choice).*	
	Severe bleeding	7 [ ]
	Fever	8 [ ]
	Convulsion	9 [ ]
	Other:_____	10 [ ]
	DK	11 [ ]
	Do not answer	12 [ ]

C.137	According to your opinion, right after delivery, what signs indicate that the baby needs to be seen by medical staff? *(This is multi-choice).*	
	Do not cry or cry weakly	10 [ ]
	Do not breath	11 [ ]
	Do not move	12 [ ]
	Purple skin	13 [ ]
	Deformity	14 [ ]
	Too small (less than 2500g of weight)	15 [ ]
	Other:_____	16 [ ]
	DK	17 [ ]
	Do not answer	18 [ ]
C.138	According to your opinions, within a week after delivery, what signs indicate that the baby needs to be seen by medical staff? *(This is multi-choice).*	
	Cannot suck mother's breast	13 [ ]
	Fever	14 [ ]
	Convulsion	15 [ ]
	Difficult to wake up	16 [ ]
	Jaundice	17 [ ]
	Swelling/wet cord	18 [ ]
	Short breath	19 [ ]
	Purple skin	20 [ ]
	Do not have bowel movement or urinate	21 [ ]
	Other:_____	22 [ ]
	DK	23 [ ]
	Do not answer	24 [ ]

Part 3. Child care

C.139	Was baby weighted after birth?	
	Yes	5 [ ]
	No	6 [ ] → **Move to C.60**
	Do not remember	7 [ ] → **Move to C.60**
	Do not answer	8 [ ] → **Move to C.60**
C.140	When was the baby first weighed?	
	Right after birth	7 [ ]
	Within one day	8 [ ]
	Within one week	9 [ ]
	After one week	10 [ ]
	Do not remember	11 [ ]
	Do not answer	12 [ ]

C.141	Who weighed the baby?	
	Relative	9 [ ]
	CHC health professional	10 [ ]
	Village health worker	11 [ ]
	TBA	12 [ ]
	Neighbor	13 [ ]
	Other_____	14 [ ]
	Do not remember	15 [ ]
	Do not answer	16 [ ]
C.142	How heavy was the baby?	
	Number of kilograms	___kg →**Move to C.61**
	DK/Do not remember	98 [ ] → **Move to C.61**
	Do not answer	99 [ ] → **Move to C.61**
C.143	Cancel	2
C.144	Do you breastfeed this child?	
	Yes	3 [ ]
	No	4 [ ] → **Move to C.655**
C.145	When did you first breastfeed this child?	
	Right after cutting cord	8 [ ]
	Within 30 minutes after delivery	9 [ ]
	Within 1 hour after delivery	10 [ ]
	Within 1 day after delivery	11 [ ]
	Over one day after delivery	12 [ ]
	Do not remember	13 [ ]
	Do not answer	14 [ ]
C.146	What did you feed this child before the **first breast feeding**? *(This is multi-choice).*	
	Nothing	10 [ ]
	Honey	11 [ ]
	Lemonade	12 [ ]
	Herb water	13 [ ]
	Chewed rice	14 [ ]
	Rice soup	15 [ ]
	Other:_____	16 [ ]
	Do not remember	17 [ ]
	Do not answer	18 [ ]
C.147	Within the first three days after delivery, did you squeeze the colostrums out before breastfeeding this child?	
	Yes	5 [ ] → **Move to C.66**
	No	6 [ ] → **Move to C.66**
	Do not remember	7 [ ] → **Move to C.66**
	Do not answer	8 [ ] → **Move to C.66**
C.148	Why don't you breastfeed this child?	
	Avoidance	6 [ ]
	Mother has disease	7 [ ]
	Baby did not suck	8 [ ]
	Other _____	9 [ ]
	Do not answer	10 [ ]

C.149	What food did you feed the baby yesterday during the day and at night? *(This is multi-choice)* Breast milk Milk Boiled rice/rice soup Instant nutritious powder Sugar Oil/fat Vegetable/vegetable boiled water Juice/fruits Fish/meat/egg Cassava/corn Beans Peanut/sesame Other_____ Do not remember Do not answer	 16 [ ] 17 [ ] 18 [ ] 19 [ ] 20 [ ] 21 [ ] 22 [ ] 23 [ ] 24 [ ] 25 [ ] 26 [ ] 27 [ ] 28 [ ] 29 [ ] 30 [ ]
C.150	How many times was this child fed yesterday during the day and at night? *(This is multi-choice)* Breast feeding Number of times As baby's need Other:_____ Eating Number of meals Do not answer	 _____times 97 [ ] 98 [ ] _____meals 99 [ ]
C.151	Are you currently breastfeeding this child? Yes No	 3 [ ] → **Move to C.70** 4 [ ]
C.152	When did you stop breastfeeding this child? Less than 12 months From 12-18 months After 18 months Do not answer	 5 [ ] 6 [ ] 7 [ ] 8 [ ]
C.153	When did you first feed this child with other food rather than breast milk? Not, yet In the first month In the second month In the third month In the fourth month After four months Do not remember Do not answer	 9 [ ] 10 [ ] 11 [ ] 12 [ ] 13 [ ] 14 [ ] 15 [ ] 16 [ ]
C.154	Has this child ever got diarrhea? Yes No DK Do not answer	 5 [ ] 6 [ ] → **Move to C.73** 7 [ ] → **Move to C.73** 8 [ ] → **Move to C.73**

C.155	When this child got diarrhea, did you continue breastfeeding/feeding him/her?	
	Yes	5 [ ]
	No	6 [ ]
	DK	7 [ ]
	Do not answer	8 [ ]
C.156	Is this child weighed monthly?	
	Yes	5 [ ]
	Yes but not regularly	6 [ ]
	No	7 [ ] → **Move to C.75**
	Do not answer	8 [ ] → **Move to C.75**
C.157	Who weighs the baby?	
	Village health worker	7 [ ]
	Women union's member	8 [ ]
	CHC health worker	9 [ ]
	Mother	10 [ ]
	Other _____	11 [ ]
	Do not answer	12 [ ]
C.158	According to your opinion, what signs indicate that the child less than 2 years old needs to seek health care? *(This is multi-choice).*	
	Fever	
	Convulsion	11 [ ]
	Difficult to wake up	12 [ ]
	Do not eat for a day at least	13 [ ]
	Vomit	14 [ ]
	Short breath	15 [ ]
	Diarrhea	16 [ ]
	Other:_____	17 [ ]
	DK	18 [ ]
	Do not answer	19 [ ]
		20 [ ]
C.159	Did this child get sick during the last month?	
	Yes	3 [ ]
	No	4 [ ] → **Move to C.78**
C.160	When this child was sick, what did you do first?	
	Self-treat the baby	9 [ ]
	Purchase drug	10 [ ]
	Invite sorcerer	11 [ ]
	Invite health staff	12 [ ]
	Take the child to health center	13 [ ]
	Do nothing	14 [ ]
	Other:_____	15 [ ]
	Do not answer	16 [ ]
C.161	Did this child get vaccinated?	
	Yes	4 [ ]
	No	5 [ ] → **Move to C.80**
	Do not answer	6 [ ] → **Move to C.80**

C.162	According to your opinion, what diseases can be prevented by these vaccination? *(This is multi-choice).* TB ..... Poliomyelitis ..... DPT ..... Measles ..... Other:_____ DK ..... Do not answer.....	 8 [ ] **No change** 9 [ ] 10 [ ] 11 [ ] 12 [ ] 13 [ ] 14 [ ]
C.163	Did this child take vitamin A? Yes..... No ..... DK ..... Do not answer.....	 5 [ ] 6 [ ] → **Move to C.82** 7 [ ] → **Move to C.82** 8 [ ] → **Move to C.82**
C.164	How many times? Number of times ..... DK ..... Do not answer.....	 _____times 98 [ ] 99 [ ]
C.165	*Interviewer weighs the baby* Weight	 _____kg
C.166	*Channel classified (weight/age)* Channel (A, B, C, D).....	 Channel____

Thank you!

_____/ _____/_____

Day Month Year

Full name and Signature of Interviewer

Appendix J: Updated CSHGP Project Data Form

Child Survival and Health Grants Program Project Summary
Dec-13-2007

Save the Children
(Vietnam)

General Project Information:

Cooperative Agreement Number:	HFA-A-00-02-00044-00
Project Grant Cycle:	18
Project Dates:	(9/30/2002 - 9/29/2007)
Project Type:	Standard
SC Headquarters Technical Backstop:	David Marsh
Field Program Manager:	Tran Thi Kiem
Midterm Evaluator:	David Pyle
Final Evaluator:	Judith T. Fullerton
USAID Mission Contact:	Loi Ngo Tien

Field Program Manager Information:

Name:	Tran Thi Kiem
Address:	Save The Children/US 141 Le Duan Str. 6th FL. Hanoi, Vietnam Hanoi
Phone:	(84-4) 942 5696
Fax:	(84-4) 942 5697
E-mail:	KiemTT@savechildren.org.vn

Alternate Field Contact:

Name:	Ha Pham Bich
Address:	Save the Children/US 141 Le Duan street, 6th Floor Hanoi
Phone:	844.942.5696
Fax:	844.942.5697
E-mail:	Hapb@savechildren.org.vn

Funding Information:

USAID Funding:(US $): $1,300,000 **PVO Match:(US $)** $433,342

Project Information:

Description:
The goal of the Building Partner Capacity for Child Survival of Vietnamese Ethnic Minority Population project is to achieve sustained reduction in maternal and under-five mortality. Major project interventions are: maternal and newborn care; nutrition and micro nutrition; and breastfeeding.

Key strategies include:
(1) the positive deviance approach for sustainable community-based rehabilitation and prevention of malnutrition;
(2) the positive deviance pilot – tested for improved newborn care;
(3) community meeting approach with application of positive deviance plus method;
(4) living university methods for joint health system strengthening and community demand mobilization;
(5) enabling a local NGO, the Regional Training Center for Community Development to take over the LU to sustain and scale up successful experience.

Location:
Da Krong and Huong Hoa Districts of Quang Tri Province

Project Partners	Partner Type	Subgrant Amount
Program for Appropriate Technology in Health	Subgrantee	$165,489.00
Research & Training Center for Community Development (RTCCD)	Subgrantee	$11,489.00
DaKrong District Health Service (DHS) Quang Tri Province, Vietnam	Subgrantee	$101,937.00
Huong Hoa District Health Service (DHS) Quang Tri Province, Vietnam	Subgrantee	$148,382.00
Subgrant Total		**$427,297.00**

General Strategies Planned:
Advocacy on Health Policy
Strengthen Decentralized Health System

M&E Assessment Strategies:
KPC Survey
Health Facility Assessment
Organizational Capacity Assessment with Local Partners
Organizational Capacity Assessment for your own PVO
Participatory Rapid Appraisal
Participatory Learning in Action
Community-based Monitoring Techniques
Participatory Evaluation Techniques (for mid-term or final evaluation)

Behavior Change & Communication (BCC) Strategies:
Mass Media
Interpersonal Communication
Support Groups

Groups Targeted for Capacity Building:

PVO	Non-Govt Partners	Other Private Sector	Govt	Community
US HQ (General) US HQ (CS unit) Field Office HQ CS Project Team	PVOs/NGOs (Int'l./US) Local NGO Networked Group	Traditional Healers	National MOH Dist. Health System Health Facility Staff	Health CBOs Other CBOs CHWs

Interventions/Program Components:

Nutrition (40%)
(IMCI Integration)
(CHW Training)
(HF Training)

Maternal & Newborn Care (45%)
(IMCI Integration)
(CHW Training)
(HF Training)

Breastfeeding (15%)
(CHW Training)
(HF Training)

Target Beneficiaries:

Infants < 12 months:	**2,626**
Children 12-23 months:	**2,907**
Children 0-23 months:	**5,533**
Children 24-59 months:	**7,018**
Children 0-59 months:	**13,931**
Women 15-49 years:	**20,897**
Population of Target Area:	**87,000**

Rapid Catch Indicators:

	Numerator	Denominator	Percentage	Confidence Interval
Percentage of children age 0-23 months who are underweight (-2 SD) from the median weight-for-age, according to the WHO/NCHS reference population)	108	397	27.2%	6.7
Percentage of children age 0-23 months who were born at least 24 months after the previous surviving child	0	0	0.0%	0.0
Percentage of children age 0-23 months whose births were attended by skilled health personnel	269	396	67.9%	9.3
Percentage of mothers of children age 0-23 months who received at least two tetanus toxoid injections before the birth of their youngest child	298	317	94.0%	11.0
Percentage of infants age 0-5 months who were exclusively breastfed in the last 24 hours	42	81	51.9%	19.1
Percentage of infants age 6-9 months receiving breast milk and complementary foods	56	56	100.0%	26.2
Percentage of children age 12-23 months who are fully vaccinated (against the five vaccine-preventable diseases) before the first birthday	372	395	94.2%	9.8
Percentage of children age 12-23 months who received a measles vaccine	0	0	0.0%	0.0
Percentage of children age 0-23 months who slept under an insecticide-treated bednet the previous night (in malaria-risk areas only)	0	0	0.0%	0.0
Percentage of mothers who know at least two signs of childhood illness that indicate the need for treatment	0	0	0.0%	0.0
Percentage of sick children age 0-23 month who received increased fluids and continued feeding during an illness in the past two weeks	0	0	0.0%	0.0

	Numerator	Denominator	Percentage	Confidence Interval
Percentage of mothers of children age 0-23 months who cite at least two known ways of reducing the risk of HIV infection	0	0	0.0%	0.0
Percentage of mothers of children age 0-23 months who wash their hands with soap/ash before food preparation, before feeding children, after defecation, and after attending to a child who has defecated	0	0	0.0%	0.0

Comments for Rapid Catch Indicators

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