

SAVE THE CHILDREN WORKING PAPER NO. 2

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

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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), ≥ 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.^{1,2} This concept — known as positive deviance (PD)^{3,4} —was used successfully to improve the nutritional status of children in several settings in the 1990s.^{5,6,7,8,9,10} 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;¹¹ newborn care in Pakistan;^{12,13} pregnancy outcomes in Egypt;^{14,15} 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.¹⁶

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.^{17,18} Re-evaluation confirmed sustained anthropometric and behavioral effects that were transferred to younger siblings born after the project had ceased.¹⁹

We therefore conducted a large, randomized, prospective trial of the PD approach in twelve communes in northern Viet Nam.^{20, 21, 22, 23, 24, 25, 26} 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 implementation²⁷ 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.^{27,28} 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.²⁹ 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 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 Quang Tri's estimated crude birth rate of 15.2 (reference). 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 $\leq 60\%$ 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%, $\geq 75\%$?").

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 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. 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).³⁰ 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^{30,31,32} in 2007 further confirmed and characterized sustainability. During the final evaluation of CS18, we tested

indicators for measuring various domains of community capacity,³⁰ 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 Evaluation³¹ 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 survey³² 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 study³⁰ 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 kit
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 2 nd 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

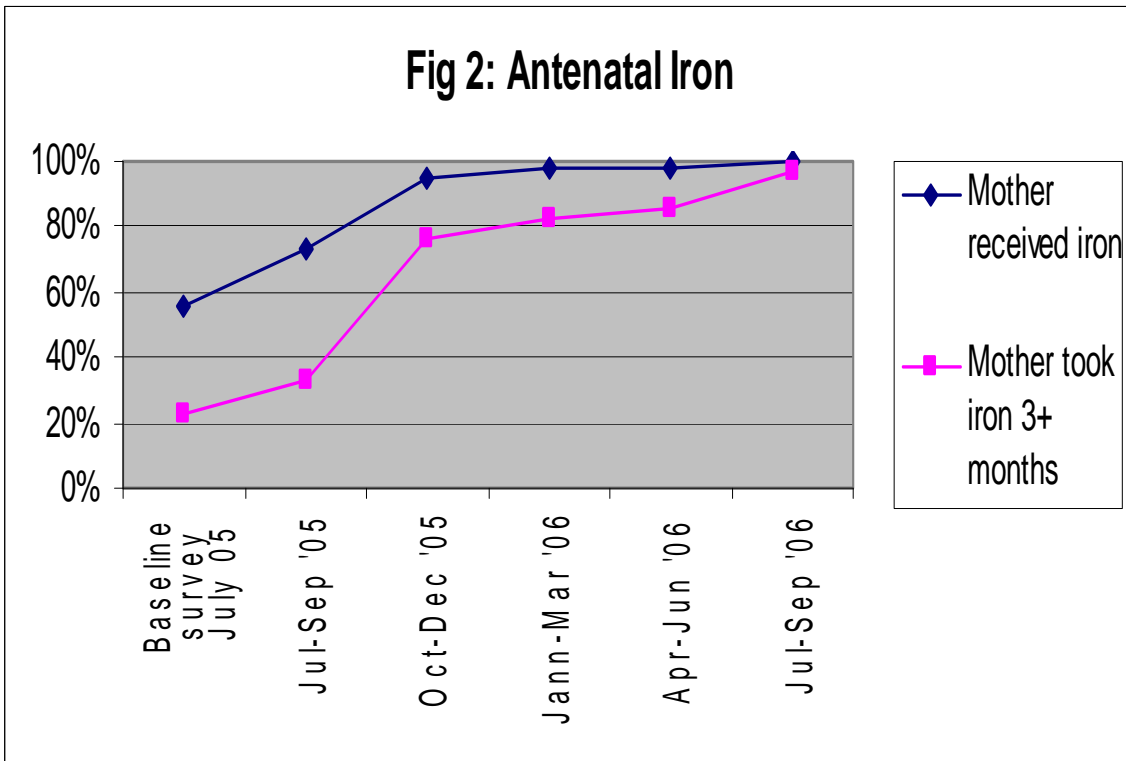
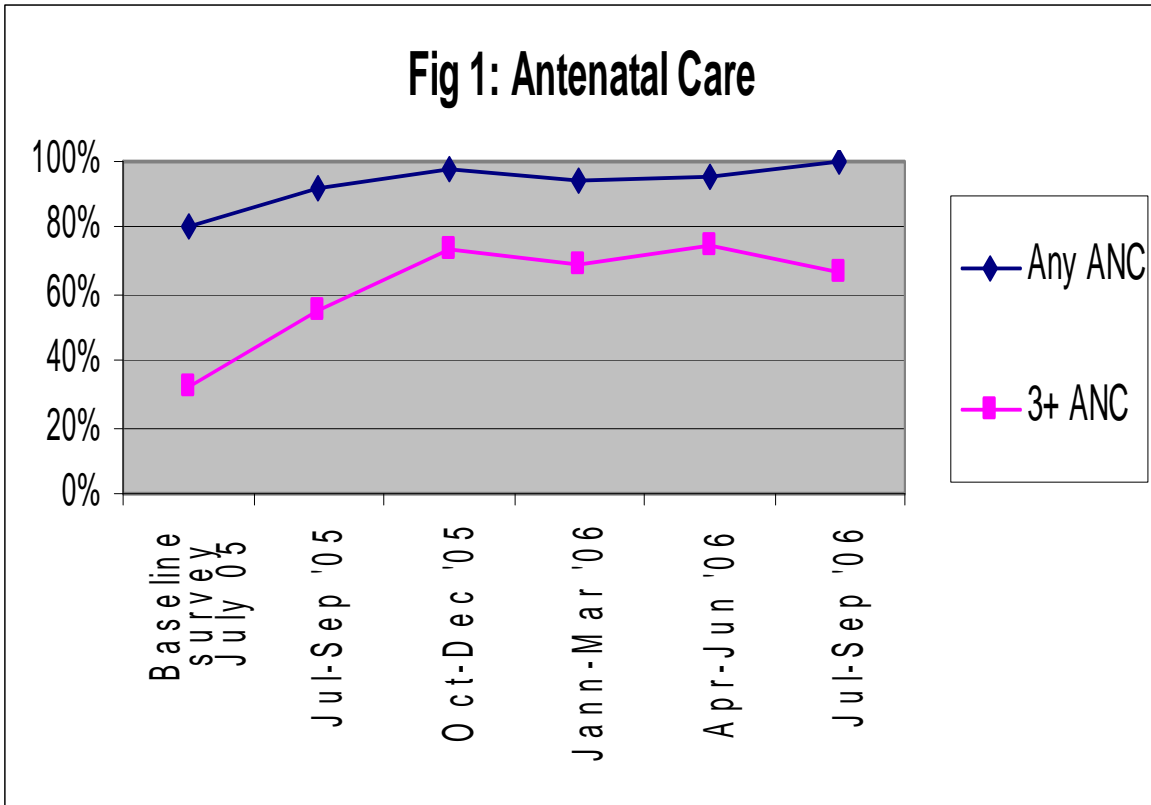


Fig 3: Tetanus Toxoid, as TT2

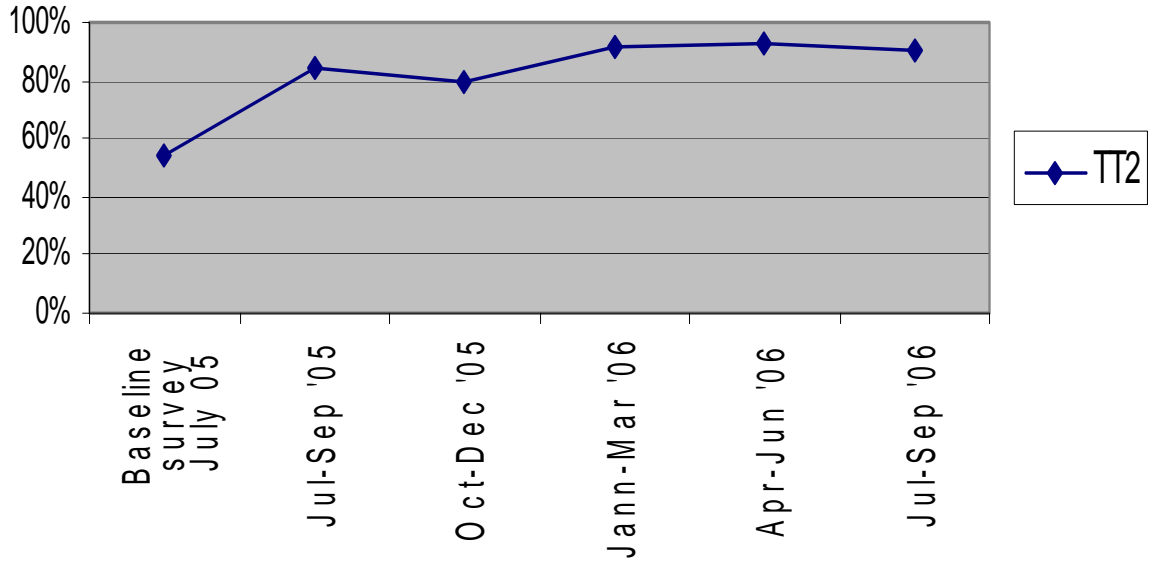


Fig 4: Delivery Care

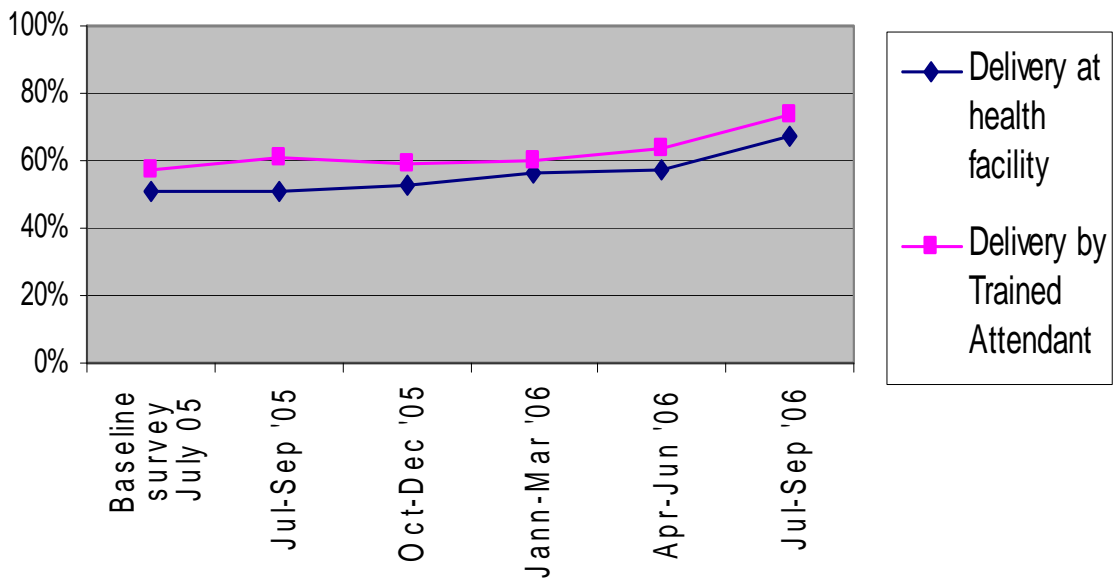


Fig 5: Receipt and Use of Clean Delivery Kit Among Home Deliveries

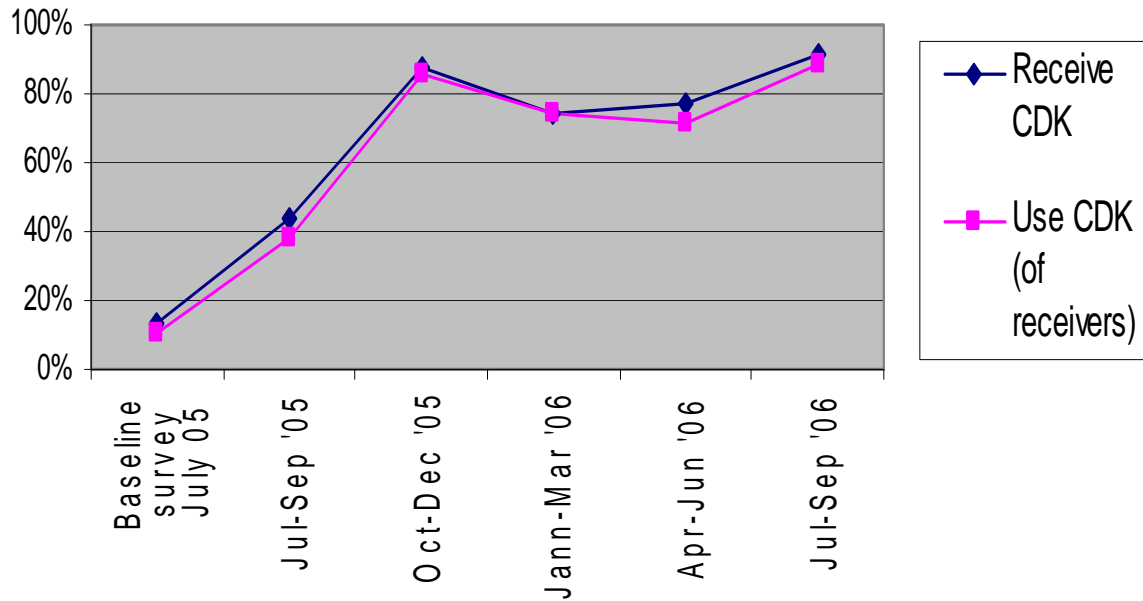


Fig 6: Newborn Care

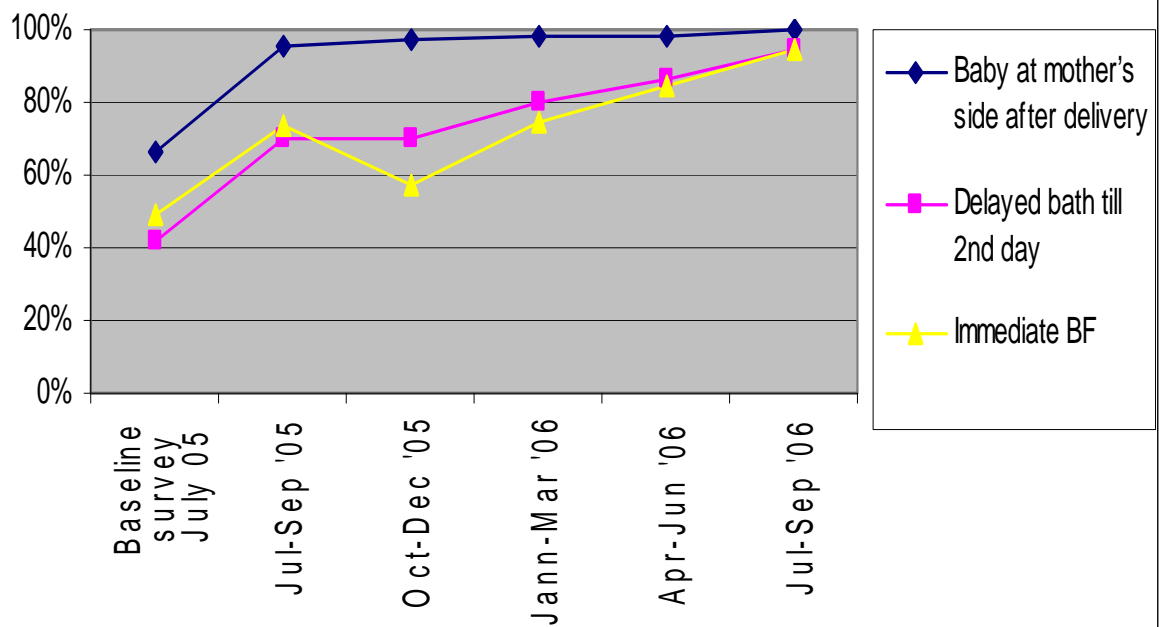


Fig 7: Neonatal and Maternal Nutrition

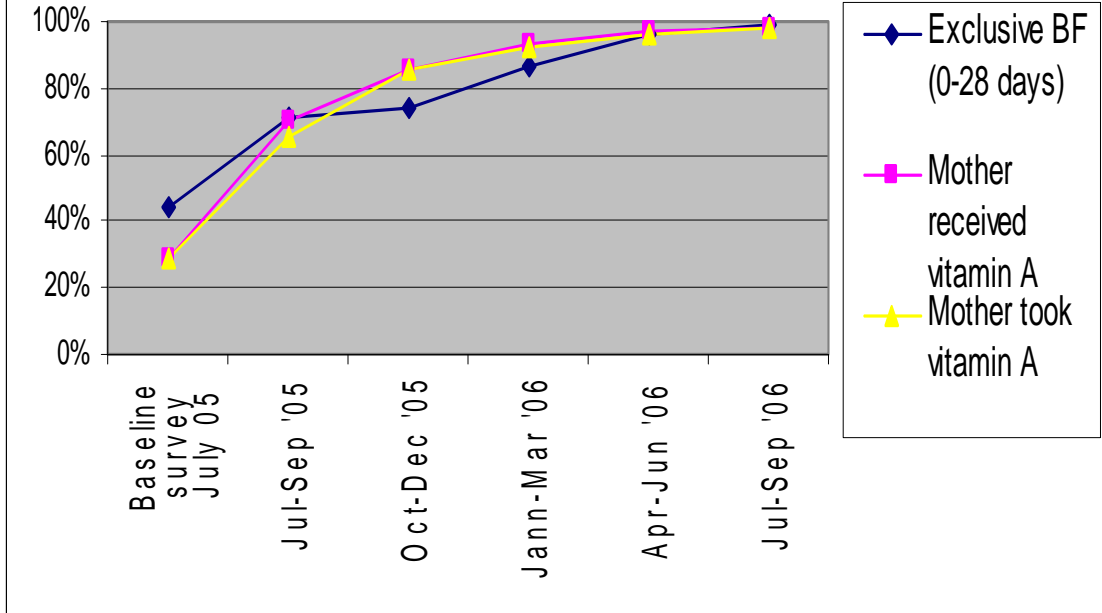


Table 9A: Comparison of Knowledge and Behaviors Among 19 Mothers Who Participated in Baseline Phase 3 Household Survey and Who Delivered Another Child During Phase 3 of the Project by Outcome

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	87	108	42	368
	(35.6)	(23.6)	(29.3)	(11.4)	
	218**		150**		
	(59.2)		(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	<ul style="list-style-type: none"> • Knowledge of benefit either from CM or CHC staff (but not mass media) • CHC close to home 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Unaware of benefit • Lack of ANC •
	Tetanus toxoid	Prevents disease in baby	<ul style="list-style-type: none"> • HHW notifies about vaccination day • Provided by outreach 	<ul style="list-style-type: none"> • Unaware of benefit

Family household practice	Clean delivery kit	Clean delivery	<ul style="list-style-type: none"> • Attended CM to learn why and how to use CDK 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Knowledge of benefit 	<ul style="list-style-type: none"> •
	Delayed bath	Keeps baby warm	<ul style="list-style-type: none"> • All learned from CM 	<ul style="list-style-type: none"> •
	Know maternal and newborn danger signs	Early identification allows early care	<ul style="list-style-type: none"> • All learned from CM 	<ul style="list-style-type: none"> •
Individual household practice	Exclusive breast-feeding	EBF good for baby	<ul style="list-style-type: none"> • 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) 	<ul style="list-style-type: none"> • 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 milk is "spoiled" • Breast pain or other difficulties
	Maternal vitamin A	Helps baby not to be blind	<ul style="list-style-type: none"> • CG provide vitamin A 	<ul style="list-style-type: none"> •

Table 10B: Determinants of Mothers' Reported Healthy Behaviors

Behavior (n)	Determinant	Number of mothers
Improved behaviors or knowledge of delivery and postpartum care (19)	<ul style="list-style-type: none"> Attended the community meeting on delivery and postpartum care 	16
Improved knowledge of maternal and newborn danger signs and newborn resuscitation (16)	<ul style="list-style-type: none"> 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)	<ul style="list-style-type: none"> Attended the community meetings 	14
Warm newborn (17)	<ul style="list-style-type: none"> Know benefit 	13
Delay first bath (17)	<ul style="list-style-type: none"> Know benefit 	13
Immediate breastfeeding (15)	<ul style="list-style-type: none"> Know benefit 	12
Facility-based delivery (8)	<ul style="list-style-type: none"> Know benefit 	7
CDK use (4)	<ul style="list-style-type: none"> Know about CDK and received it 	4

Table 10C: Determinants of Mothers' Reported Unhealthy Behaviors

Behavior (n)	Determinants	Number of mothers
Home delivery (11)	<ul style="list-style-type: none"> No difficulty with past delivery 	9
	<ul style="list-style-type: none"> Enjoy convenience of giving birth at home 	5
	<ul style="list-style-type: none"> Live too far from health facilities 	4
	<ul style="list-style-type: none"> Lack money 	4
	<ul style="list-style-type: none"> Current delivery ended too fast to reach facility 	3
	<ul style="list-style-type: none"> Know the benefit of facility delivery 	2
Not seeking help from health worker (11)	<ul style="list-style-type: none"> Family members and neighbors good enough 	6
	<ul style="list-style-type: none"> Live too far from health workers 	3
Not using CDK (7)	<ul style="list-style-type: none"> Did not have CDK 	7
	<ul style="list-style-type: none"> Not attend community meetings 	4
	<ul style="list-style-type: none"> Did not know about CDK 	3

Figure 8: Participation in 83 Community Meetings

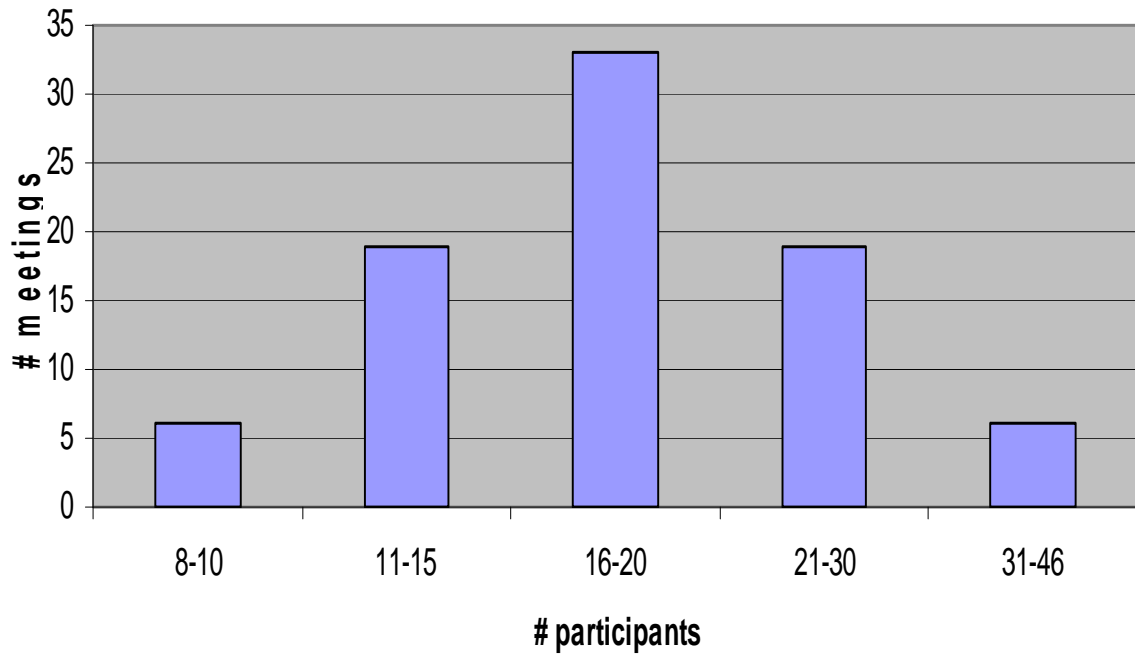


Table 11A: Mothers' Participation in Community Meetings by Ethnicity (3 groups)

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)	

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)
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)
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 < 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 < 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 <u>after</u> 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

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 powder 5. 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



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 1? 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?					

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 TT shots did you receive during pregnancy?					
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?					

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, for the women who had just gave birth, what the signs should be considered as dangerous which have to transfer to health facilities immediately?					
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?					

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 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

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's name of the your youngest child: _____ What's his/her DOB: _____/_____/_____ Day Month Year How old is he/she (months) _____
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What is your ethnic group: Van Kieu <input type="checkbox"/> Pakoh <input type="checkbox"/> Kinh <input type="checkbox"/> Other <input type="checkbox"/> _____	What's Ethnic group: : Van Kieu <input type="checkbox"/> Pakoh <input type="checkbox"/> Kinh <input type="checkbox"/> Other <input type="checkbox"/> _____
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Part 1. General information

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

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? (<i>Based on HH registration book</i>)	
	Number of people	____ persons
	Do not answer	99 []

Part 2. Information on MCH and newborn care

C.8	How many pregnancies have you been having? (<i>including abortion, miscarriage</i>)	____ times
	Number of pregnancies.....	99 []
	Do not answer.....	
C.9	How many births have you given? (<i>including deaths</i>)	____ time
	Number of birth	99 []
	Do not answer.....	
C.10	How many alive children do you have at present?	____ children
	Number of children.....	99 []
	Do not answer.....	
C.11	When you were pregnant for this child, did you get antenatal care?	
	Yes	1 []
	No	2 [] → Move to C.16
	Do not answer.....	3 [] → Move to C.16
C.12	Do you have maternal care card? (<i>Check the card, if yes</i>)	
	Yes	1 []
	Yes, but loss.....	2 []
	Do not have.....	3 []
C.13	How many times have you got ANC check? (<i>excluding examination at delivery</i>)	
	Number of ANC check	____ times
	Do not remember	98 []
	Do not answer.....	99 []
C.14	Where did you get ANC check?	
	Commune health center	1 []
	District hospital	2 []
	Provincial Hospital	3 []
	Outreach ANC service at village	4 []
	Other: _____	5 []
	Do not remember	6 []
	Do not answer	7 []

C.15	Who performed the ANC check? <i>(this is a multi-choice)</i> Health professional..... Traditional healer..... Traditional Birth Attendant (TBA)..... Other..... Do not answer.....	<input type="checkbox"/> → Move to C.17 <input type="checkbox"/> → Move to C.17 <input type="checkbox"/> → Move to C.17 <input type="checkbox"/> → Move to C.17 <input type="checkbox"/> → Move to C.17
C.16	Why didn't you get ANC check up? <i>(This is the multi-choice)</i> 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 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/>
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.....	<input type="checkbox"/> <input type="checkbox"/> → Move to C.19 <input type="checkbox"/> → Move to C.20 <input type="checkbox"/> → 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 <input type="checkbox"/> → Move to C.20 99 <input type="checkbox"/> → Move to C.20
C.19	Why didn't you get TT shots for the pregnancy of this child? <i>(This is the multi-choice)</i> 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.....	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
C.20	Before this pregnancy, did you get tetanus vaccinated? Yes..... No..... Do not know/Don't remember..... Do not answer.....	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/>

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

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

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

C.39	Which parts of the CDK did you use? <i>(This is multi-choice)</i> 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? <i>(This is multi-choice)</i> 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? (<i>This is multi-choice</i>) 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? (<i>This is multi-choice</i>). 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? (<i>This is multi-choice</i>). Severe bleeding 1 [] Fever 2 [] Convulsion 3 [] Other: _____ 4 [] DK 5 [] Do not answer 6 []

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

Part 3. Child care

C.56	<p>Was baby weighted after birth?</p> <p>Yes 1 []</p> <p>No 2 [] → Move to C.60</p> <p>Do not remember 3 [] → Move to C.60</p> <p>Do not answer 4 [] → Move to C.60</p>	
C.57	<p>When was the baby first weighed?</p> <p>Right after birth 1 []</p> <p>Within one day..... 2 []</p> <p>Within one week..... 3 []</p> <p>After one week..... 4 []</p> <p>Do not remember 5 []</p> <p>Do not answer 6 []</p>	

C.58	Who weighed the baby? Relative CHC health professional..... Village health worker TBA Neighbor Other..... Do not remember Do not answer.....	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/>
C.59	How heavy was the baby? Number of kilograms..... DK/Do not remember Do not answer.....	___kg → Move to C.61 98 <input type="checkbox"/> → Move to C.61 99 <input type="checkbox"/> → Move to C.61
C.60	Cancel	1
C.61	Do you breastfeed this child? Yes No	1 <input type="checkbox"/> 2 <input type="checkbox"/> → 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 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/>
C.63	What did you feed this child before the first breast feeding? <i>(This is multi-choice).</i> Nothing Honey Lemonade Herb water Chewed rice Rice soup Other:..... Do not remember Do not answer.....	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/>
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 <input type="checkbox"/> → Move to C.66 2 <input type="checkbox"/> → Move to C.66 3 <input type="checkbox"/> → Move to C.66 4 <input type="checkbox"/> → 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 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>

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

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? (<i>This is multi-choice</i>). 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? <i>(This is multi-choice)</i> . TB Poliomyelitis DPT Measles Other: _____ DK Do not answer	1 <input type="checkbox"/> No change 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/>
C.80	Did this child take vitamin A? Yes No DK Do not answer	1 <input type="checkbox"/> 2 <input type="checkbox"/> → Move to C.82 3 <input type="checkbox"/> → Move to C.82 4 <input type="checkbox"/> → Move to C.82
C.81	How many times? Number of times DK Do not answer	_____times 98 <input type="checkbox"/> 99 <input type="checkbox"/>
C.82	<i>Interviewer weighs the baby</i> Weight	_____kg
C.83	<i>Channel classified (weight/age)</i> Channel (A, B, C, D)	Channel_____

Thank you!

_____/_____/_____
 Day Month Year

Full name and Signature of
 Interviewer

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- ¹ Wray JD. Can we learn from successful mothers? *J Trop Ped & Env Child Hlth* 1972;18(3): 27.
- ² Wishik SM, Van der Vynkt S. The use of nutritional 'positive deviants' to identify approaches for modification of dietary practices. *Am J Pub Hlth* 1976;66(1):38-42.
- ³ Zeitlin M, Ghassemi H, Mansour M. Positive deviance in child nutrition – with emphasis on psychosocial and behavioral aspects and implications for development. Tokyo: United Nations University, 1990.
- ⁴ Shekar M., Habicht J-P, Latham M. Positive-negative deviant analyses to improve programme targeting and services: example from Tamil Nadu Integrated Nutrition Project. *Int J Epidemiol* 1992;21(4):707-713.
- ⁵ Sternin M, Sternin J, Marsh D, Rapid, Sustained Childhood Malnutrition Alleviation Through a "Positive Deviance" Approach in Rural Vietnam: Preliminary Findings" in Keeley E, Burkhalter BR, Wollinka O, Bashir N (eds) *The Hearth Nutrition Model: Applications in Haiti, Vietnam, and Bangladesh, Report of a Technical Meeting at World Relief Corporation, Wheaton, IL, June 19-21, 1996*, Arlington: BASICS, 1997.
- ⁶ Sternin M, Sternin J, Marsh D, Scaling Up A Poverty Alleviation and Nutrition Program in Viet Nam, for Marchione T, *Scaling Up, Scaling Down: Capacities for Overcoming Malnutrition in Developing Countries*, Amsterdam: Gordon and Breach, 1999.
- ⁷ Bolles K, C Speraw, G Berggren, JG Lafontant, Ti Foyer (hearth) community-based nutrition activities informed by the positive deviance approach in Leogane, Haiti: A programmatic description, *Food and Nutrition Bulletin* 2002;23 (4 suppl):11-17
- ⁸ Food for the Hungry International, <http://gme.fhi.net/fse/R2/docs/ISA%20FY%202001%20Report.doc>, 2004
- ⁹ EcoYoff, <http://ifnc.tufts.edu/pdf/ecoyoff21.pdf>, 2004.
- ¹⁰ Sethi V, Kashyap S, Seth V, Agarwal S, Encouraging Appropriate Infant Feeding Practices in Slums: A Positive Deviance Approach, *Pakistan Journal of Nutrition* 2(3): 164-166, 2003.
- ¹¹ Dearden K, Quan N, Do M, et al., What influences health behavior? Learning from caregivers of young children in Vietnam, *Food and Nutrition Bulletin*, 2002;23 (4 suppl):119-129.
- ¹² Marsh DR, Sternin M, Khadduri R, Ihsan T, Nazir R, Bari A, Lapping K, Identification of Model Newborn Care Practices Through a Positive Deviance Inquiry To Guide Behavior Change Interventions In Haripur, Pakistan, *Food and Nutrition Bulletin*, 2002;23 (4 suppl):109-118.
- ¹³ Marsh D, M Shafique, A Ambreen, et al., Positive Deviance Approach to Improved Newborn Care Behaviors in Rural Pakistan, 6th World Congress of Perinatal Medicine Osaka, Japan, September 14, 2003
- ¹⁴ Ahrari M, Kuttab A, Khamis S, et al., Socio-economic and Behavioral Factors Associated with Successful Pregnancy Outcomes in Upper Egypt: A Positive Deviance Inquiry, *Food and Nutrition Bulletin*, 2002; 23(1): 83-88.
- ¹⁵ Ahrari M, Yassin S, Mogheez M, Hussaini Y, Crump P, Darmstadt GL, Marsh DR, Houser RF, Levinson FJ, A Positive Deviance-Based Nutrition and Health Intervention Improves Birth weight in Upper Egypt, in press, *Journal of Health Population and Nutrition*.
- ¹⁶ Marsh DR, Schroeder DG, Dearden KA, Sternin J, Sternin M, The Power of Positive Deviance: *British Medical Journal*, 2004; 329:1177-1179.
- ¹⁷ Sternin M, Sternin J, Marsh D, Rapid, Sustained Childhood Malnutrition Alleviation Through a "Positive Deviance" Approach in Rural Vietnam: Preliminary Findings" in Keeley E, Burkhalter BR, Wollinka O, Bashir N (eds) *The Hearth Nutrition Model: Applications in Haiti, Vietnam, and Bangladesh, Report of a Technical Meeting at World Relief Corporation, Wheaton, IL, June 19-21, 1996*, Arlington: BASICS, 1997.
- ¹⁸ Sternin M, Sternin J, Marsh D, Scaling Up A Poverty Alleviation and Nutrition Program in Viet Nam, for Marchione T, *Scaling Up, Scaling Down: Capacities for Overcoming Malnutrition in Developing Countries*, Amsterdam: Gordon and Breach, 1999.
- ¹⁹ Mackintosh AT, Marsh DR, Schroeder DG, Sustainable positive deviant child care practices and their effects on child growth in Viet Nam, *Food and Nutrition Bulletin*, 2002;23 (4 suppl):18-27.

-
- ²⁰ Marsh DR, Pachón H, Schroeder DG, et al., Design of a prospective, randomized evaluation of an integrated nutrition program in rural Viet Nam, *Food and Nutrition Bulletin*, 2002;23 (4 suppl):36-47.
- ²¹ Schroeder DG, Marsh DR, Ding B, Pachón H, Ha TT, Dearden KD, Kwon C, Impact of an intervention on Vietnamese children's growth, *Food and Nutrition Bulletin*, 2002;23 (4 suppl):53-61.
- ²² Pachón H, Schroeder DG, Marsh DR, Dearden KA, Ha TT, Lang TT, Effect of an integrated child nutrition intervention on the dietary intake of children less than 24 mo in rural north Vietnam, *Food and Nutrition Bulletin*, 2002;23 (4 suppl):62-69.
- ²³ Sripaipan T, Schroeder D, Marsh DR, et al., Do community-based nutrition programs reduce morbidity? A case from Vietnam, *Food and Nutrition Bulletin*, 2002;23 (4 suppl):70-77.
- ²⁴ Dickey V, Pachón H, Marsh DR, Lang TT, Clausenius et al., Evaluation of Positive Deviance-informed Nutrition Education and Rehabilitation Programs in Vietnam, *Food and Nutrition Bulletin*, 2002;23 (4 suppl):78-85.
- ²⁵ Hendrickson JL, Dearden KA, Pachon H, An NH, Schroeder DG, Marsh DR, Empowerment in rural Viet Nam: Exploring changes in mothers and health volunteers in the context of an integrated nutrition project, *Food and Nutrition Bulletin* 2002;23 (4 suppl):86-94.
- ²⁶ Ha PB, Bentley ME, Pachón H, et al., Caregiver styles of feeding and child acceptance of food in rural Viet Nam, *Food and Nutrition Bulletin*, 2002;23 (4 suppl):95-100.
- ²⁷ Marsh DR, Sternin M, Khadduri R, Ihsan T, Nazir R, Bari A, Lapping K, Identification of Model Newborn Care Practices Through a Positive Deviance Inquiry To Guide Behavior Change Interventions In Haripur, Pakistan, *Food and Nutrition Bulletin*, 2002;23 (4 suppl):109-118.
- ²⁸ Marsh D, M Shafique, A Ambreen, et al., Positive Deviance Approach to Improved Newborn Care Behaviors in Rural Pakistan, 6th World Congress of Perinatal Medicine Osaka, Japan, September 14, 2003
- ²⁹ Lapping K, Marsh DR, Rosenbaum J, Swedberg E, Sternin J, Sternin M, Schroeder DG, The positive deviance approach: Challenges and opportunities for the future, *Food and Nutrition Bulletin* 2002;23 (4 suppl):130-137.
- ³⁰ Marsh DR, Ha PB, Kiem TT, Fullerton J, 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 Working Paper #3), Save the Children, Westport: September 8, 2007
- ³¹ Fullerton JT, Marsh DR, Kiem TT, Ha PB, Khanh VH, Nghia NT, Tam NT, Final evaluation report – Child Survival 18-Vietnam: Building partner capacity for child survival of Vietnamese ethnic populations, Save the Children, Westport: December 31, 2007
- ³² Luong VK, Luat ND, Ha PB, Kiem TT, Khan VN, Marsh DR, 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, Save the Children, Hanoi: August 30, 2007.