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EVALUATION

DESPITE HOSTILE TERRAIN AND SOCIAL BARRIERS: AN EVALUATION OF THE BETTER HEALTH FOR AFGHAN MOTHERS AND CHILDREN PROJECT

AUGUST 2013

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DESPITE HOSTILE TERRAIN AND SOCIAL BARRIERS: AN EVALUATION OF THE BETTER HEALTH FOR AFGHAN MOTHERS AND CHILDREN PROJECT

**USING INTEGRATED INTERVENTIONS TO STRENGTHEN THE
DELIVERY OF THE BASIC PACKAGE OF HEALTH SERVICES IN 74
RURAL VILLAGES IN POST-CONFLICT AFGHANISTAN**

August 30, 2013

CSHGP Cooperative Agreement Number GHN-A-00-08-00008-00

DISCLAIMER

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

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ACRONYMS

ANC	Antenatal Care
BDN	Bakhtar Development Network
BFHI	Baby Friendly Hospital Initiative
BHAMC	Better Health for Afghan Mothers and Children (Project)
BHC	Basic Health Center
BPHS	Basic Package of Health Services
CBK	Clean Birth Kit
CHA	Coordination of Humanitarian Assistance
CHC	Comprehensive Health Center
CHW	Community Health Worker
CMAM	Community Management of Acute Malnutrition
CSHGP	Child Survival and Health Grants Program (of USAID)
DIP	Detailed Implementation Plan
DOPH	Department of Public Health
DPT	Diphtheria, Pertussis and Tetanus (vaccine)
FHAG	Family Health Action Group
FGD	Focus Group Discussion
HBLSS	Home-based Life-Saving Skills
HMH	Herat Maternity Hospital
HMIS	Health Management Information System
IYCF	Infant and Young Child Feeding
KBC	Kangaroo Baby Care
KPC	Knowledge, Practices, Coverage (survey)
LQAS	Lot Quality Assurance Sampling (survey)
MNC	Maternal and Neonatal Care
MNCH	Maternal, Neonatal and Child Health
MOPH	Ministry of Public Health
MOVE	MOVE Welfare Organization
MOU	Memorandum of Understanding
MTE	Midterm Evaluation
NGO	Nongovernmental Organization
OR	Operations Research
ORS	Oral Rehydration Salt
ORT	Oral Rehydration Therapy
PD	Positive Deviance
PR	Program Result
ttC	Timed and Targeted Counseling
USAID	United States Agency for International Development
WASH	Water, Sanitation and Hygiene
WHO	World Health Organization
WV	World Vision



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Despite Hostile Terrain and Social Barriers: An Evaluation of the Better Health for Afghan Mothers and Children Project— Executive Summary

This project was funded by the U.S. Agency for International Development through the Child Survival and Health Grants Program.

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Evaluation, Purpose, and Evaluation Questions

The overall purpose of the final evaluation was to assess the extent of achievement of project objectives and to contribute to CSHGP's learning on integrated community-oriented programming. Specific objectives were to assess the extent to which the project accomplished its objectives and targets, to describe key factors that contributed to what worked in the project and what did not, to inform future actions and contribute to global learning. The goal of Better Health for Afghan Mothers and Children (BHAMC) was to achieve sustained improvements in the survival and health of mothers, newborns and children. The evaluation responds to three key areas contributing to this goal:

1. Did BHAMC improve the health status of vulnerable target populations with increased knowledge, practice and coverage of key interventions; improved access to services, and quality and equity in service delivery?
2. Was there increased scale of interventions: improved partner capacity and improved systems and policies?
3. Did the project contribute to excellence in child survival nationally and globally?

Project Background

World Vision implemented BHAMC in 74 villages in Karukh, Zindajan, Kohsan and Chisht-e-Sharif districts of Herat province, Afghanistan from September 2008 to February 2013, aiming to improve maternal, neonatal, and child health (MNCH) and survival. Though the country's health and development indicators continue to remain among the lowest globally, there have been improvements in recent years, and essential services are being made more available. BHAMC's target locations are home to about 117,000 people, predominantly rural and of Pashtun ethnicity. These locations have 180 health posts, eight basic health centers, and five comprehensive health centers that deliver the Basic Package of Health Services (BPHS) of the Ministry of Public Health (MOPH). National non-governmental organizations (NGOs) selected by MOPH manage the delivery of BPHS through these facilities. MNCH interventions are a key aspect of BPHS. The Herat Maternity Hospital (HMH) provides comprehensive emergency obstetric/neonatal care services.

August 2013

FINAL EVALUATION EXECUTIVE SUMMARY



Community health worker uses mobile phone application in work.

Key Findings:

- Increase in skilled birth attendance (9%)
- Increase in postnatal check (3.5%)
- Increase in timely initiation of breastfeeding (8.2%)

Evaluation Questions, Design, Methods, and Limitations

The BHAMC project carried out Knowledge, Practice and Coverage (KPC) surveys at baseline and at end line. Both surveys were carried out with Institutional Review Board clearance from APHI. Data was collected in mid-late winter for both surveys (February 2009 for the baseline survey and December 2012 for the end line survey). The baseline survey was done in the five districts proposed originally, of which one was dropped in the first year, and the end line survey covered the four districts in which the project worked. There was no change to the data collection instrument between the two surveys.

Both surveys used similar sampling strategy, with sample sizes of 600 mothers of children aged 0 to 23 months selected using the two-stage 30-cluster sampling design, and 20 households selected from each cluster. However, the sampling frame varied between the two surveys in that the baseline survey covered five districts and the end line survey only four, as the fifth district Ghorriyan, was dropped during the early part of the first year of the Project. In addition to this factor, several areas became inaccessible towards the latter half of the project owing to security concerns, leading to a difference in the extent to which they were represented in the end line survey, as shown in Table 1 below:

Table 1: A comparison of baseline and end line samples in five sampled districts

District	Baseline Samples		End line Samples	
	#	% of total	#	% of total
Chisht-e-Sharif	40	7	20	3
Karukh	140	23	130	22
Kohsan	140	23	201	33
Zindajan	100	17	249	42
Ghorriyan	180	30	--	0
Total	600	100	600	100

Chisht-e-Sharif was less represented in the end line survey than at baseline, while Zindajan district had twice the level of representation at end line as it had at baseline. It is likely that these differences contributed to the differences or their lack thereof in coverage levels between the two surveys. It should however, be noted that within each of these two surveys, samples were distributed proportionate to population size of the primary sampling units.

Aspects of instrument development and testing, selection of data collectors and their training, quality control procedures, random selection of households within selected clusters and logistical details were similar in both surveys. Twenty-five couples functioned as data collectors during the baseline survey and 19 couples during the end line survey, and for this reason, data collection took longer during the latter.

The database of the baseline survey was not available during the evaluation for assessing how data was processed and indicators computed. This was particularly disadvantageous in interpreting those indicators with fairly high baseline levels, as the reported baseline figures could not be ascertained and 95% confidence limits could not be calculated for those for which the limits were not reported and the significance of changes in those indicators could not be determined.

Findings and Conclusions

The **Technical Interventions and Approach:** BHAMC's five technical interventions and corresponding levels of effort were: maternal and newborn care, MNC (35%), infant and young child feeding, IYCF (20%), prevention and control of diarrhea (20%), improved case management of pneumonia (15%), and immunization (10%). A key approach was to strengthen the delivery of BPHS. Overall strategies and implementation areas were:

1. Mobilizing health shura leaders, communities and families to utilize MNC services using the Home-based Life Saving Skills (HBLSS) methodology.
2. Improving newborn care in facilities with the Baby Friendly Hospital Initiative (BFHI).
3. Rehabilitating moderately malnourished children using Positive Deviance (PD)-Hearth and improving infant feeding practices through household level dialogue and negotiation using timed and targeted counseling (ttC).
4. Improving community health worker (CHW) capacity to manage diarrhea and pneumonia, including the use of zinc in diarrhea management.
5. Increasing the reach of preventive care by facilitating outreach campaigns to remote locations.

Findings on Progress Toward Objectives: The project has made improvements in areas critical to maternal and child survival: skilled birth attendance, timely initiation of breastfeeding, exclusive breastfeeding up to six months of age, vitamin A supplementation, measles vaccination coverage, zinc supplementation in diarrhea, timely care seeking for pneumonia and hand washing.

The most significant improvements have been in *maternal and neonatal care*. Skilled birth attendance increased from 24.3% to 33.3%, post natal checkup from 20.8% to 24.3% and timely initiation of breastfeeding from 50% to 58.2%. The HBLSS methodology is a good fit with the local context, working initially with health shura leaders who endorsed its key messages, leading communities to recognize the need for appropriate care and seek it. The intervention also received a high level of effort. The presence of the community midwifery project of WV and the choice of the BPHS implementer as the project's NGO partner ensured that supply aligned with increasing demand. Aided by the pictorial HBLSS material, knowledge levels on MNC-related danger signs increased. The intervention also led to significant community-wide improvements in attitudes toward women and their healthcare needs. Village leaders and heads of households who used to impose restrictions on women's movements outside their homes now actively promote accessing of MNC services and women's volunteering in MNCH activities. Families plan for child birth and save money; Shura leaders ensure transportation to the facility. Health facilities report significant increases in deliveries and ANC clinic attendance over the past two years.

Infant feeding outcomes related to breastfeeding (timely initiation and exclusive breastfeeding up to six months of age) have improved significantly since baseline, the practices having been communicated through HBLSS meetings and CHWs' visits to pregnant women's homes. However, behaviors related to minimum meal frequency and dietary diversity for 6-23 month olds have improved only marginally since the LQAS survey done in early 2012. A combination of design and implementation factors could be identified as possible reasons: the choice of PD Hearth as the implementation model, which is labor-intensive and recuperative, leading to low geographic coverage (6% of end-of-project under-5 children screened); lack of focus on children under 2 within this approach (9% of all enrolled children) and insufficient emphasis on diet diversity, particularly flesh foods. Though ill-suited for improving population-wide feeding practices, PD Hearth has been demonstrated to be effective in addressing moderate malnutrition, being low-cost, community-based and using local solutions and resources. These factors raise its potential for sustained use. The high baseline levels could not be verified.

Prevention and management of Childhood Illness has seen mixed results. Caregivers' hand washing has shown significant increase from baseline; it was promoted through multiple channels in the project and through WV's complementary interventions, and it resonated with caregivers' desire to care for their infants. Coverage for point-of-use water treatment improved in early 2012 as shown in LQAS, but declined at end line. Oral rehydration therapy declined from a baseline level of 40.4% to 15% in LQAS and rose to 32.7% at end line. Training of CHWs and ensuring of supplies has led to significant improvements in prompt and appropriate care seeking for pneumonia.

For *child immunizations*, the project built MOH and partner capacity to carry out outreach campaigns for hard-to-reach areas. There is consistent and unambiguous descriptive evidence for improvements in child immunization coverage while quantitative data which shows decline in DPT1 and DPT3 coverage and increase in measles vaccination coverage. High coverage levels at baseline could not be verified.

Conclusions

The evaluation team commends WV and its partners for implementing a largely successful program with focused, community-based interventions in a highly insecure and fragile environment, maximizing efficiencies and developing a model for addressing high MNC needs and in the process, boldly assisting communities to recognize and discard debilitating gender norms.

EVALUATION PURPOSE

The external evaluator of the BHAMC project was hired with project funds and her independent views protected. USAID approved the evaluator and reviewed the draft Statement of Work. This evaluation was completed prior to May, 2013 guideline revisions.

The overall purpose of the final evaluation was to assess the extent of achievement of project objectives and to contribute to CSHGP's learning on integrated community-oriented programming. Specific objectives were to assess the extent to which the project accomplished its objectives and targets, to describe key factors that contributed to what worked in the project and what did not, to inform future actions and contribute to global learning. The evaluation used a mixed methods approach, using primary quantitative data from knowledge, practice and coverage (KPC) surveys, qualitative data collected through 33 focus group discussions and four in-depth interviews, and routine project data. Baseline and end line KPC surveys (carried in February 2009 and December 2012 respectively) each used samples of 600 mothers of children aged 0-23 months, and were similar in design and execution, but the baseline survey covered the five originally proposed districts the fifth one having been dropped during the first year of the project.

Specific objectives were to:

- Provide an overview of project goals, objectives, and key intervention strategies used.
- Determine the extent to which the project accomplished the results outlined in the detailed implementation plan (DIP) and to present evidence of these accomplishments.
- Describe key factors that contributed to what worked or did not work regarding aspects of the program and to inform future program actions.
- Provide a record of how these results were obtained, to foster understanding of processes and inform future actions.
- Demonstrate how this project contributes to global learning about community-based health programming.

The evaluation used a mixed-methods approach, using primary quantitative data collected through knowledge, practice and coverage (KPC) surveys carried out at baseline and end line, as well as qualitative data collected during the evaluation and routine project data. It assessed improvements in outcomes as well as the sufficiency and effectiveness of the project's strategy and processes to reach its targets and contextual factors that have influenced progress. Annex 9 provides details of the evaluation methodology, instruments used for qualitative inquiry and the timeline. Routine project data was useful in assessing the depth and breadth (coverage) of each intervention and interpret survey findings.

The evaluation methodology was a partly inductive and partly deductive process. Questions and probes in the discussion guides were focused on the topics and themes of the evaluation but were broad enough to enable rich discussion within each topic, including the setting, situational factors and processes. Discussions on changes in health status and behaviors used a before-after format with a four-year time frame. The evaluation team obtained multiple perspectives were obtained on each topic from a range of stakeholders, through 33 focus group discussions and 4 in-depth interviews. Owing to security concerns, the evaluation team could not visit one of the 4 target districts but key informants from target communities in that district traveled to Herat to meet with the team. Annex 10 provides the list of people that the evaluation team interacted with, documents reviewed and places visited.

Baseline and end line KPC surveys were carried out with Institutional Review Board clearance from APHI. Both surveys had sample sizes of 600 mothers of children aged 0 to 23 months and similar sampling design. Data was collected in mid-late winter for both surveys (February 2009 for the baseline survey and December 2012 for the end line survey). The baseline survey was done in the five districts proposed originally, of which one was dropped in the first year, and the end line survey covered the four districts in which the project worked. There was no change to the data collection instrument between the two surveys.

The database of the baseline survey was not available for assessing how data was processed and indicators computed. This was particularly disadvantageous in interpreting those indicators with fairly high baseline levels, as the reported baseline figures could not be ascertained and 95% confidence limits could not be calculated for those for which the limits were not reported and the significance of changes in those indicators

Despite the continuing conflict, progress is being made, especially in terms of re-establishing core state institutions, availability of the

Women 15-49 y	14,475	13,000	12,375	5,400	45,250
Total Population	37,635	33,800	32,175	14,040	117,650

Basic Package of Health Services (BPHS) and the development of telecommunications led by the private sector. Widespread poverty, continued insecurity, weak governance, low population density and inhospitable terrain and the absence of critical infrastructure continue to challenge development efforts. These efforts are being led by the national government through its National Development Strategy (2008-13).

Herat province is located in the Western Region of the country and is home to an estimated 1.2 million people living in 15 districts. The four districts that the BHAMC project worked in were selected for their relatively larger population size, poorer health infrastructure and the presence of World Vision's development investments. A fifth district, Ghoriyan, proposed in the original application was dropped during the early part of the first year of the project to avoid overlap with another USAID-funded initiative. The four target districts have similar demographic, cultural, and socio-economic profiles. About 80% of the population lives in rural areas and more than 60% is Pashtun. Islam is the only religion practiced in these locations. Rural households are composed of large, extended families with heads of households controlling all resources. The majority of the population practices subsistence agriculture under difficult conditions.

Herat province has a recovering health system with inadequate and inequitably distributed health staff, particularly for the provision of outreach and community-based services. The top causes of maternal mortality based on facility data from Herat in 2007 were eclampsia, post-partum hemorrhage and uterine rupture. Out of the 13,906 deliveries in Herat facilities in 2007, 12% resulted in neonatal death and 6% in stillbirth⁶. Primary causes of neonatal deaths nationally are neonatal tetanus (26%), severe infection (23%), birth asphyxia (19%), and preterm births (16%).¹ Principal causes of under-5 mortality, besides neonatal causes, are pneumonia, diarrhea and measles.

Health Service Delivery

The core service delivery mechanism of the Ministry of Public Health (MoPH) for primary healthcare is its Basic Package of Health Services (BPHS). BPHS is contracted out to non-governmental organizations (NGOs), with support from the World Bank, USAID and the European Commission. Implementation of BPHS resulted in a significant increase in the availability of primary healthcare services countrywide, from 9% of the population living with 2 kilometers' walking distance from a PHC facility in 2000 to 65% in 2006. BPHS is offered at four levels of health services:

1. Health Post (HP), staffed by a male and a female community health worker (CHW), serving a population of 1,000 to 1,500
2. Basic Health Center (BHC) staffed by a midwife, nurse and vaccinator, covering 15,000 to 30,000 people
3. Comprehensive Health Center (CHC) staffed by doctors, nurses, midwives and laboratory technicians, reaching 30,000 to 60,000 people
4. District Hospital, staffed by specialist doctors and a team of other staff, reaching 100,000 to 300,000 people. These hospitals often serve more than one district

This package has seven primary elements, the first three being maternal and newborn care, child health and immunization and public nutrition, and combines clinical care and public health interventions. MNCH and other interventions such as diagnosis and treatment for tuberculosis are offered free of charge. Table 2 below lists the health facilities functioning in the BHAMC target locations:

Facility Type	# in project area	Services (related to the project's interventions)
Health Post	180	Health education and dialogue through home visits, referral
Basic Health Center	8	Primary preventive and outpatient treatment services essential maternal and newborn care services (ANC, Delivery, PNC and Family planning), Immunization services (fixed and outreach sessions in far flung locations), TB DOTS and growth monitoring.

⁶ From HMIS, Herat 2007

Comprehensive Health Center	5	All BHC services plus laboratory services and dedicated staff for nutrition services (growth monitoring and nutrition education)
District Hospital	0	All CHC services plus emergency surgery cases, comprehensive emergency obstetric care and inpatient treatment services (First referral unit)
Provincial/Maternity Hospital	1	Comprehensive emergency obstetric and neonatal care services, training for community midwives

Results Framework of the Project

The goal of the BHAMC project was to achieve sustained improvements in the survival and health of mothers, newborns and children. Three program results (PR) and sub-program results were to lead to achieving this goal:

PR1: Improved health status of vulnerable target populations

- PR1.1: Increased knowledge, practices and coverage of key health interventions
- PR 1.2: Improved access, quality and equity of key health services

PR2: Increased scale of health interventions

- PR 2.1: Improved capacity of partners to effectively address health issues and increase population reach
- PR 2.2: Improved systems and policies to support service delivery

PR3: Contribute to global capacity and leadership in child survival and health

- PR 3.1: Contribution to technical excellence in child survival nationally and globally

Overview of Technical Interventions and Approach

WV built upon their substantial programming in the Province including an ongoing community midwifery training program, WASH initiatives and other collaborations with MOPH and the NGO implementing partners to build BHAMC's design and technical approach. A key design-level choice was to strengthen the delivery of the BPHS package and extend it to the household level.

BHAMC's five technical interventions and corresponding levels of effort were: maternal and newborn care, MNC (35%), infant and young child feeding (20%), prevention and control of diarrhea (20%), improved case management of pneumonia (15%), and immunization (10%). Overall project strategies and corresponding accomplishments are listed below.

- *Mobilize communities and health shura⁷ members toward improving utilization of MNC services using the Home-based Life Saving Skills (HBLSS) methodology and curriculum.* Over 400 CHWs, women volunteers and Shura members were trained using HBLSS by 50 trainers from the project, MOPH and the partner NGO. 104 family health action groups (FHAGs)⁸ were formed, which own and lead this process. CHWs and community leaders trained in HBLSS made over 50,000 referrals related to MNC, as per the project's records. HBLSS was implemented in all target villages and arguably had the highest level of effort. Health shuras provided financial assistance to 288 pregnant women from poor households to delivery in facilities. Work with the lady health shuras was done through the district offices of the Department of Women's Affairs in the 4 target districts.
- *Improving the quality of care in home births, while working toward increasing facility births.* BHAMC distributed 41,047 clean birth kits as part of WV's matching contribution through its gifts-in-kind program which families used to ensure clean home birth or used the material to complement supplies in facility births.
- *Facilitate rehabilitation of malnourished children and foster appropriate feeding and care practices using Positive Deviance (PD)-Hearth:* This is a community-based approach that helps identify local solutions to recuperate children with moderate malnutrition and to promote healthy behaviors. The project trained 45 CHW supervisors and facility staff as PD-Hearth trainers who in turn trained 54 CHWs in the approach. Over 800 children were rehabilitated through 55 Hearth sessions across 47 villages with an average weight gain of 0.8 kilograms.

⁷ A shura is a community level committee formed for addressing thematic issues such as health and water and sanitation

⁸ FHAG is a term that MOPH uses to refer to groups of volunteer women, who along with the CHW lead public health efforts in their communities. These groups also form a support system for CHWs in their work, forming a sub-CHW network

- *Equipping CHWs to do case management of childhood illness in communities:* BHAMC developed training material and job aids for pneumonia and diarrhea case management, including the use of zinc in the latter.
- *Capacity building of CHWs, health facility staff, partner NGO staff to strengthen the quality of services they provide:* This includes training in the Baby Friendly Hospital Initiative (BFHI) for staff of CHCs and the Herat Maternity Hospital in order to improve facility-based neonatal care services. BHAMC supported training of BFHI trainers (2 from MOPH, 9 from Herat Maternity Hospital and 2 from WV) at Kabul.
- *Improve the adoption and practice of household level behaviors through the ttC approach.* This is WV's organization-wide model for household level dialogue and negotiation for improving MNCH outcomes, in which CHWs deliver sets of MNCH messages at scheduled time points during pregnancy and the first two years of life to households. These messages are timely, and target caregivers as well as decision-makers within the family. ttC was implemented in 37 villages and in the last year and a half, with 21 trainers and 74 CHWs.
- *Supportive supervision of community meetings:* Project staff supported meetings that CHWs organized to discuss key MNCH behaviors and oversaw the establishment of emergency transport mechanisms in all target communities.
- *Improve reach of services to remote communities:* BHAMC supported revision of community maps (to identify all remote communities) and development of microplans for conducting outreach immunization/ANC sessions. It successfully advocated for midwives to be part of outreach teams and supervised the sessions along with the partner NGO
- *Use of zinc supplementation in diarrhea management.* This was through an MOU with MOPH and using 141,900 doses of zinc supplement brought in as gifts-in-kind. Subsequently, MOPH included zinc in its treatment policy for diarrhea though the project did not actively engage in the policy dialogue.

The purpose of the *Operations Research (OR) study* was to identify an innovative solution to the low utilization of MNC services in the project area. Specifically, it sought to assess the effectiveness of mobile technology in increasing utilization of MNC services and in improving knowledge of danger signs in pregnancy, delivery and in neonates, which in turn will prompt life-saving actions.

The OR intervention was implemented in five villages in Karukh district, with five others in the same district serving as comparison sites. The OR study used a pretest-posttest design with baseline and end line household surveys carried out in intervention and comparison sites. The sample size of each of the 4 surveys was 103 mothers with children less than 24 months of age.

World Vision worked with the software consultancy firm Dimagi in adapting the latter's software application, CommCare™ for CHWs in the OR intervention sites to develop two modules, one for antenatal care and another for postnatal care based on HBLSS. The modules were developed in Dari, the local language, in visual and audio formats. A database was also set up at the BHAMC office and at World Vision headquarters that can access data in real time. BHAMC trained five CHW couples in the use of these modules who were provided with mobile phones loaded with the application and with airtime to support them when they visited pregnant women at key times during pregnancy and postnatal and for making referral calls. The CHW couples visited pregnant women at specific times during pregnancy to discuss specific actions related to their health and to upload information related to their pregnancy on the mobiles. Key aspects discussed were: the need for antenatal care visits and delivering in a facility, planning and preparing for birth (transportation, saving money, coordination with health facility for delivery, essential newborn care items), danger signs during pregnancy, labor, delivery, and caring for a newborn. In particular, the CHWs discussed the need for facility birth with the family and facilitated related decisions. When the woman went into labor, the CHWs made a referral call and linked the woman's family with a skilled provider at the nearest facility. In both intervention and comparison sites, as with the rest of BHAMC's target communities, the HBLSS package was used to improve the same outcomes.

Key Partners

MOPH in Kabul, the Afghanistan Public Health Institute (APHI) and the Department of Public Health (DOPH) in Herat provided guidance in technical areas and also reviewed progress in project activities, supporting the BHAMC team on adopting and implementation of the ttC program in the targeted district and etc.

The project worked with four local NGOs as implementing partners, through sub-grants: Move Welfare Organization and Coordination for Humanitarian Assistance (CHA) during its first half, and the Bakhtar

Development Network (BDN) and its sub-grantee Ibn Sina during its latter half. This change corresponds that in BPHS implementers in target locations. These NGO partners provided training, supervision and monitoring of project activities. They also provided BPHS-related services, including outreach campaigns to target locations and supported the security of the project team in its movements in target locations.

The project had several meetings with USAID Mission representatives in Kabul and Herat to share progress and receive input, and hosted a Mission representative in a target location and to a training event in Herat.

The project had a mutually beneficial partnership with the Herat Maternity Hospital (HMH). The hospital provided clinical training for those in the community midwifery program of WV, who would then serve as staff in health facilities in the project's target locations. The project implemented activities related to facility-based newborn care in HMH and trained its staff as trainers in BFHI and other technical areas. The project also closely worked with other facilities in the four target districts, coordinating referrals between CHWs and the facilities, helping plan and organize outreach camps and training facility staff in a range of technical areas.

Health shura leaders in each target community were key collaborators in community-based activities, both learning from initiatives such as HBLSS and taking them forward through their influence and organizing capacity. They also played a key role in ensuring the safety of project staff during their visits to field locations.

Other Relevant Programs in Target Locations

WV Afghanistan had several other interventions in the project area, with private and bilateral funding, to complement the project's efforts and fill in resource gaps.

- The community midwifery program (implemented since 2004 through a sub-contract with Jhpiego, an international non-profit health organization and a USAID contractor, in Herat and Ghor provinces) ensured that trained midwives were deployed in facilities within target locations as part of their mandatory services prior to being awarded their diploma.
- The WASH project provided 8.7 million "PUR" sachets, a point-of-use water treatment method that provided safe water for 12 months for 11,000 households in two of the four target locations, in years 2 and 3 of BHAMC. The project also supported the construction of 700 ventilated improved pit model latrines for selected poor households in these two target locations, with contribution from communities
- The WASH extension project expanded upon the latrine construction initiative to other locations of BHAMC and also had WASH-related communication and education activities to improve awareness on water and sanitation and management of diarrhea
- Three complementary child survival initiatives totaling US\$ 300,000 supported training events, HBLSS and PD-Hearth related activities and provided essential supplies to BHAMC locations, bolstering its efforts over the last two years of BHAMC.

Project and OR Design:

The operations research (OR) intervention aimed to assess the effectiveness of mobile technology in increasing utilization of MNC services and in improving knowledge of danger signs in pregnancy, delivery and in neonates, in turn, prompting life-saving actions.

The project's OR design was implemented within the strategy to *Mobilize communities and health shura members toward improving utilization of MNC services using the Home-based Life Saving Skills (HBLSS) methodology and curriculum (see page 13)*. For the purpose of the study, the control sites were selected from the existing project sites but did not receive operational research interventions. However, the control sites received other MNCH intervention packages.

World Vision worked with the software consultancy firm Dimagi in adapting their software application, CommCare for CHWs in the OR intervention sites to develop two modules, one for antenatal care and another for postnatal care, based on Home Based Life Saving Skills (HBLSS). The modules were developed in Dari, the local language, in visual and audio formats. BHAMC trained five CHW couples in the use of these modules who were provided with mobile phones loaded with the application and with airtime to support them when they visited pregnant women at key times during pregnancy and postnatal and for making referral calls.

The CHW couples visited pregnant women at specific times during pregnancy to discuss specific actions related to their health and to upload information related to their pregnancy on the mobiles. Key aspects discussed were: the need for antenatal care visits and delivering in a facility, planning and preparing for birth (transportation, saving money, coordination with health facility for delivery, essential newborn care items), danger signs during pregnancy, labor, delivery, and caring for a newborn.

The *OR study* showed that the addition of the mobile phone application to ongoing HBLSS intervention leads to further increase in utilization of MNC services. The intervention area saw significantly greater improvement over time than the comparison sites in ANC visits, birth planning and facility births. The mobile application served as a job aid in user-friendly formats, and helped CHWs communicate directly with facility staff and provided real-time data to the project team.

Partnerships/Collaboration:

The Ministry of Public Health in Kabul, the Afghanistan Public Health Institute (APHI) and the Department of Public Health (DOPH) in Herat provided guidance in technical areas and also reviewed progress in project activities, supporting the BHAMC team on adopting and implementation of the ttC program in the targeted district.

The project worked with four local NGOs as implementing partners, through sub-grants: Move Welfare Organization and Coordination for Humanitarian Assistance (CHA) during its first half, and the Bakhtar Development Network (BDN) and its sub-grantee Ibn Sina during its latter half. This change corresponds that in BPHS implementers in target locations. These NGO partners provided training, supervision and monitoring of project activities. They also provided BPHS-related services, including outreach campaigns to target locations and supported the security of the project team in its movements in target locations.

The project had several meetings with USAID Mission representatives in Kabul and Herat to share progress and receive input, and hosted a Mission representative in a target location and to a training event in Herat.

The project had a mutually beneficial partnership with the Herat Maternity Hospital (HMH). The hospital provided clinical training for those in the community midwifery program of WV, who would then serve as staff in health facilities in the project's target locations. The project implemented activities related to facility-based newborn care in HMH and trained its staff as trainers in BFHI and other technical areas. The project also closely worked with other facilities in the four target districts, coordinating referrals between CHWs and the facilities, helping plan and organize outreach camps and training facility staff in a range of technical areas.

Health Shura leaders in each target community were key collaborators in community-based activities, both learning from initiatives such as HBLSS and taking them forward through their influence and organizing capacity. They also played a key role in ensuring the safety of project staff during their visits to field locations.

EVALUATION METHODS AND LIMITATIONS

The evaluation used a mixed-methods approach, using primary quantitative data collected through knowledge, practice and coverage (KPC) surveys carried out at baseline and end line, as well as qualitative data collected during the evaluation and routine project data. It assessed improvements in outcomes as well as the sufficiency and effectiveness of the project's strategy and processes to reach its targets and contextual factors that have influenced progress. Annex 9 provides details of the evaluation methodology, instruments used for qualitative inquiry and the timeline. Routine project data was useful in assessing the depth and breadth (coverage) of each intervention and interpret survey findings.

The evaluation methodology was a partly inductive and partly deductive process. Questions and probes in the discussion guides were focused on the topics and themes of the evaluation but were broad enough to enable rich discussion within each topic, including the setting, situational factors and processes. Discussions

on changes in health status and behaviors used a before-after format with a four-year time frame. The evaluation team obtained multiple perspectives were obtained on each topic from a range of stakeholders, through 33 focus group discussions and 4 in-depth interviews. Owing to security concerns, the evaluation team could not visit one of the 4 target districts but key informants from target communities in that district traveled to Herat to meet with the team. Annex 10 provides the list of people that the evaluation team interacted with, documents reviewed and places visited.

Baseline and end line KPC surveys were carried out with Institutional Review Board clearance from APHI. Both surveys had sample sizes of 600 mothers of children aged 0 to 23 months and similar sampling design. Data was collected in mid-late winter for both surveys (February 2009 for the baseline survey and December 2012 for the end line survey). The baseline survey was done in the five districts proposed originally, of which one was dropped in the first year, and the end line survey covered the four districts in which the project worked. There was no change to the data collection instrument between the two surveys.

The database of the baseline survey was not available for assessing how data was processed and indicators computed. This was particularly disadvantageous in interpreting those indicators with fairly high baseline levels, as the reported baseline figures could not be ascertained and 95% confidence limits could not be calculated for those for which the limits were not reported and the significance of changes in those indicators could not be determined. Annex 6 contains the end line KPC report.

Data Quality and Use

Routine longitudinal data for BHAMC were of two types: district-level health management information systems (HMIS) reports of MOPH and information related to project-specific activities.

Through an agreement with DOPH and with assistance from BDN, the project received data for the target districts from the HMIS every quarter. The project analyzed this data for trends in ANC attendance, facility births and immunization coverage and presented it back to DOPH during the project's review meetings with the Department. Though the project did not reach entire districts, the data was used to analyze trends in utilization of services and the impact of project interventions, particularly HBLSS. HMIS focuses on facility-based data from BHCs and higher level facilities, and a limited number of indicators related to health posts, and none related to household level behaviors, which form the bulk of BHAMC's interventions.

The project developed a database to record and to cumulate routine data from its activities such as HBLSS, PD-Hearth and BFHI initiatives, which the project team reviewed each month for progress. This database provided comprehensive data on each intervention and also served as a dashboard for viewing project accomplishments and providing feedback to the team. The project manager reviewed data from the OR project every month and provided feedback provided to the CHWs in the OR intervention area.

Project staff use monitoring formats developed by MOPH for supervising health facilities, and offer on-the-job coaching, including written feedback. These visits were made jointly with DOPH staff once a quarter, and this has been received well by the Department. On its part, BDN uses Progress Data Sheets of the HMIS to cross-check reported data.

The project collected cross-sectional, population level data through baseline and end line KPC surveys and through a lot quality assurance sampling (LQAS) survey done in March 2012. The baseline survey helped establish baselines and set targets for key programmatic indicators and also confirmed the appropriateness of the intervention mix. BHAMC presented its baseline KPC survey findings to MOPH and APHI in Kabul in 2009. Taking note of the high prevalence of diarrhea among children (45% over the 2 weeks preceding the survey) reported in the KPC baseline, WV Afghanistan advocated internally and brought in resources from a range of private donors to complement BHAMC's interventions, as outlined in section B.6 above.

The midterm evaluation was held in December 2010 to qualitatively assess progress toward objectives and a set of recommendations made for the second half of the project.

The LQAS survey aimed to assess progress in key project indicators and to assist in program management. However, it was not used to analyze performance of sub-program areas which is a key utility feature of the survey, one that enables a project to prioritize and focus its effort in sub-areas of greatest need. However, its project-wide coverage levels were used to shift focus toward technical areas that did not perform well.

FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

FINDINGS

Summary Table of Inputs, Activities, and Outputs That Contributed to Key Outcomes

Table 3: Summary of Major Project and OR Accomplishments

Program Result #1: Improved Health Status of Mothers, Children and Newborns in Herat Province			
Project Inputs	Activities	Outputs	Outcome
HBLSS training material; lead trainers About 40,000 HBLSS action cards	50 trainers (WV, MOPH, NGO partners) and 400 CHWs, volunteers and health shura leaders trained across 70 target villages 104 family health action groups (FHAGs) formed (419 members total).	Over 50,000 routine and emergency referrals related to MNC services made from across 70 villages Health shuras have organized emergency transportation in every target village	Skilled attendance at birth improved from 24.3% at baseline to 33.3% in the final year Facility births improved from 24.5% to 41.2% Proportion of mothers who had a post natal checkup went up from 20.8% to 24.3%
41,047 Clean Birth Kits (CBKs) from gifts-in-kind program	CBKs distributed to families	Families hand over CBKs to facility staff for use during facility births or use them for clean home births	Contributed to improved quality in the above outcomes
PD Hearth training and material; lead trainers	45 trainers (WV, CHW supervisors, facility staff, NGO partners) and 54 CHWs trained	55 hearth sessions conducted across 47 villages, which included discussions on feeding and care practices	800 children graduated from the hearth sessions with an average weight gain of 0.8 kg Percentage of mothers who report hand washing with soap during at least 2 appropriate times increased from 43.7% to 78%
CHW training material and job aids for community management of childhood illness Observation of World Pneumonia Day	213CHWs trained; need for prompt care seeking discussed during community meetings CHW functionality assessment carried out for 82 CHWs	CHWs identify signs of pneumonia in children and treat/refer	Percentage of children age 0-23 months with chest-related cough and fast and/ or difficult breathing in the last two weeks who were taken to an appropriate provider increased from 60.9% to 97.5%
Project Result # 2: : Increased scale of health interventions (Improved capacity of partners, health systems and policy)			
Project Inputs	Activities	Outputs	Outcome
Coordination meetings with WV's midwifery training program	Worked with the midwifery program on placement of trained midwives in target districts	16 trained midwives deployed	Contributed to improvements in skilled attendance at birth (above)
Zinc supplementation in diarrhea introduced as a pilot; a first in the country 141,800 zinc tablets through the gifts-in-kind program;	Zinc supplements supplied to health posts CHWs trained in zinc supplementation in diarrhea	CHWs provide zinc supplements along with ORS for children with diarrhea	Proportion of children with diarrhea in the past 2 weeks who were given zinc supplements went up from 0% to 26.8% Zinc supplementation in diarrhea now MOPH policy and supply steadily improving at peripheral facilities
Supportive supervision of community meetings	CHWs conducted 3-5 community meetings on MNCH issues in each of	Improved knowledge on key health behaviors; barriers and solutions	Contributed to the other MNC outcomes under PR1.

	the 70 villages every week for the latter 2 years of the project	discussed	Percentage of children aged six months and below who were exclusively breastfed in the preceding 24 hours increased from 56.7% to 83.5% Percentage of newborns who were put to breast within one hour of delivery and did not receive pre lacteal feeds increased from 50% to 58.2%
Coordination meetings with NGO partner and facility staff Meetings with health shuras and CHWs Supervision of outreach clinics	Assisted in community mapping and microplan development Advocated for midwife from the local facility to be part of the mobile outreach team CHWs assisted in outreach clinics and in national immunization days	181 out of 239 health posts revised their community maps Coverage of outreach clinics increased in 45 remote locations through mobile teams in Zindajan and Kohsan districts Midwife part of the mobile team Communities provide security cover for facility teams to conduct outreach sessions	Percentage of mothers who had at least 4 ANC during their previous pregnancy increased from 17.5% to 22.8% Percentage of mothers who had 2 TT vaccinations during their previous pregnancy increased from 61.3% to 84.3% Measles immunization coverage increased from 45.7% to 53.6%
Support to 5 doctors and 5 midwives from target locations Translation of Handbook on mother-baby-friendly care into Dari	These providers were trained as trainers in the Baby Friendly Hospital Initiative (BFHI) at Kabul	Improved neonatal feeding and care practices in facilities	Contributed to improvements in newborn feeding outcomes (above)

Project Result # 3: Contribute to global capacity and leadership in child survival and health

Project Inputs	Activities	Outputs	Outcomes
Quarterly briefing with Dept of Public Health (DOPH), Herat Visits by USAID Mission staff	Presented progress, key learning	Learning from project disseminated nationally	MOPH and Mission keen on learning from project's technical interventions for scaling up to other parts of the country
Learning Briefs on HBLSS and OR developed and disseminated to USAID, MCHIP and WV partnership Presentations on OR at the 2011 and 2013 CORE Group Spring meetings and WV global partnership learning forums	Poster presented at the 2013 Global Newborn Health Conference in Johannesburg	Learning from project to be disseminated globally	Anticipated: contribution to other programs in similar context

Operations Research Objective

Project Inputs	Activities	Outputs	Outcome
Contracted Dimagi to design/adapt the CommCare package in text, pictorial and audio format Translation into Dari Mobile phones for CHWs and air time Training material Database at project office and at WV HQ Baseline and end line surveys in intervention and comparison areas	CommCare pregnancy and neonatal modules adapted CHWs and health shura members trained in the intervention Audio prompts and messages used in discussion of MNC issues with families and leaders CHWs provided with prompt feedback based on data received	CHWs in intervention area visited homes of pregnant women, discussed aspects of MNC and uploaded information on CommCare CHWs used CHWs coordinated 2,569 routine referrals and 57 emergency referrals through calls	Significantly higher improvements in intervention areas for the following outcomes. <u>Change in proportion</u> between baseline and end line measures from the two areas is given below: Any ANC: 20% (<i>p</i> value 0.006) Received iron supplements: 14.4% (<i>p</i> value 0.03) Have birth plan: 12.6% (<i>p</i> value 0.03) Facility Birth: 22.3% (<i>p</i> value 1.06) Knowledge of at least 2 danger signs in pregnancy: 14.5% (<i>p</i> value 0.03)

Discussion of Progress toward Achieving Results

The following sections provide a discussion on the findings of the evaluation team in terms of progress toward objectives and end-of-project targets drawing from multiple perspectives and experiences of the various stakeholders, organized by topic and theme.

Contribution toward Project and OR Results

The project has made improvements in areas critical to maternal and child survival: skilled attendance at birth, timely initiation of breastfeeding, exclusive breastfeeding up to six months of age, vitamin A supplementation, measles vaccination coverage, zinc supplementation in diarrhea, timely care seeking for pneumonia and hand washing.

Program Result 1: Improved health status of vulnerable populations

Maternal and Neonatal Care (MNC): The project has made significant achievements in MNC outcomes, particularly in skilled attendance at birth which increased from 24.3% to 33.3% (n=600) and maternal TT2 vaccination from 61.3% to 84.3% (n=600). The proportion of mothers having had a post natal checkup also improved from 20.8% to 24.3% (n=600) though not significantly. At least five factors appear to have contributed to these improvements:

1. HBLSS approach and methodology: These fit well with the local context of cohesive communities functioning under strong leadership. Dialogue began with health shura members and ensured their endorsement of the action messages, which led to families rapidly taking up recommended actions. Involvement of the leaders also enabled the emergency transport to be set up in all target villages.
2. Level of effort: This intervention arguably had the highest level of effort and was also implemented in all 74 target communities.
3. Choice of NGO partner: BDN is also implements the BPHS package in target locations and hence the project could work with BDN to bring about changes to MNC service delivery, to meet the increased demand that HBLSS generated.
4. Supply-side intervention: The community midwifery program of WV ensured a steady supply of midwives in facilities in target districts.
5. Attitudes of Facility Staff: BHAMC trained facility staff in HBLSS and BFHI, and also used the facility staff as trainers for CHWs. This led to changes in attitudes of facility staff in general and a greater appreciation for referrals by CHWs.

Interventions for MNC thus enjoyed a judicious combination of demand and supply side actions and considerable overall effort, relative to other interventions. It is important to also note that these improvements have been made despite significant constraints in implementation (discussed in a latter section in detail).

In addition to improvements in these outcomes, use of HBLSS has led to significant changes in attitudes and perceptions in communities toward healthcare for women and newborns.

“Our men folk have begun to appreciate what we learn in our meetings. They do not mind waiting for us and having a late lunch.” – A member of a Family Health Action Group

The greatest change reported by all stakeholder groups in all target districts is in the attitude of health shura leaders toward MNC services. Before BHAMC work began in these areas, these leaders had imposed several restrictions on women’s mobility outside of their homes and villages. These restrictions have now given way to active promotion of the need for women accessing MNC services. Leaders also facilitate regular announcements from mosques on issues related to MNC services.

The past four years have seen significant changes in men’s attitudes toward maternal services. There is a greater appreciation in target households of the need for accessing MNC services, and women are able to visit facilities unaccompanied by male relatives, which is a significant improvement for the project’s context. Prior to the project’s intervention, men would not allow their wives to step out of their homes saying “thousands would see them”, but now the situation has changed as the men have begun to see the benefits of preventive MNC services. CHWs worked with health shura members to negotiate with men who continued to refuse to allow their wives to access health services and also often accompanied women in labor to health facilities.

“Four years back I did not know where the clinic was or how it looked like. Now my husband provides me with money to travel to the health facility to access care when I need to.” - A mother in Majghandak village, Karukh district

Health shura leaders and CHWs of all target districts report that poorer households have been pro-actively

reached with MNC-related messages and actions. These families are encouraged to save money from early pregnancy, which the women did by generating income from embroidery and carpet-weaving work, and by selling part of their produce such as milk and eggs. A mother reports from Majghandak village in Karukh district that as a result of regular saving during pregnancy, she was pleasantly surprised that she had saved twice the amount that the family needed to rent a car to take her to the facility for delivery.

Communities are more aware than before about danger signs in pregnancy and labor. Earlier, women assisting labor would consider seeking help only after a woman has been in labor for over three days, but now facility births are gradually becoming the norm in many communities. Another aspect in the HBLSS methodology is its material that is designed for low-literacy settings, and women remark that the take-action cards are their “guide”. Health facilities report significant increases in the numbers of deliveries and ANC clinic attendance over the past two years. Shakiban BHC reports 350-400 referrals from CHWs every month during the past year.

Women and CHWs report improvements in newborn care practices, such as early and exclusive breastfeeding, feeding of colostrum, avoiding prelacteals, and using Kangaroo Baby Care (KBC) for low birth weight babies. A non-literate woman delivered a pre-term baby weighing 1.5 kilograms, but was able to learn KBC from facility staff and use it successfully to care for her baby, who is now thriving.

Infant and Young Child Feeding (IYCF): Practices related to breastfeeding have improved significantly: 58% infants were reported to have been initiated on breastfeeding within the hour of birth and were not given any prelacteals, up from 50% at baseline. Colostrum feeding, however, has remained above 90% since baseline. Exclusive breastfeeding rate improved from 56.7% at baseline to 83.5% at the end of the project, exceeding the end-of-project target. These behaviors were communicated through HBLSS meetings in communities, BFHI activities in health facilities, and through CHWs’ visits to homes of pregnant women.

Feeding of a minimum acceptable diet for children aged 6 to 23 months have declined from baseline levels, from 43.8% (n=443) to 24.4% (n=467). For the end line KPC survey, this was calculated using IYCF guidelines from WHO, by combining minimum diet diversity (4 or more food groups) and minimum meal frequency (two or more times for children aged 6-8 months and three or more for those aged 9-23 months) during the preceding 24 hours. While the reported meal frequency is fairly high at 70% for 6-8 months and 58% for 9-23 months, only 40% were given a diverse diet. Most children were fed cereals and dairy products; consumption of animal protein, eggs and protective foods is between 25% and 30%. Results from the LQAS survey also point to low levels of diet diversity (16.6%, n=78). Findings from qualitative inquiry with mothers and CHWs support the finding of insufficient promotion of diet diversity particularly flesh foods. This is likely to have contributed to the low levels of dietary diversity noted in the final survey.

Qualitative inquiry findings about trends in complementary feeding do not support the high baseline levels of minimum acceptable diet, and as noted earlier, the baseline data is not available for verification.

The project used PD Hearth as the primary means for communicating messages related to complementary feeding practices. Despite being an early entrant in the implementation of the project and having received considerable effort, it did not reach substantial coverage: it was implemented in 47 out of 74 communities; 1,710 children under 5, which is about 6% of the total under-5 beneficiary population were screened and 833 were enrolled in Hearth sessions. Owing to this low coverage, it failed to effect population-wide change. Reasons for this low coverage include the intensive and time-consuming nature of the approach, as well as it being recuperative by design, reaching only children already malnourished. It was thus a poor choice for bringing about population-wide changes in feeding practices.

Additionally, there was a greater focus on children age 2-5, as discussions with CHWs in at least one location in Kohsan district indicate. Among the 833 children reached, only 31 children (3.7%) were under 11 months of age and 48 (5.7%) were 12-23 months old, the rest being over 2 years old. Though these children are drawn from more than one cohort, changes brought about among predominantly over-2 year olds did not reflect in the KPC survey.

The project had planned to use ttC to complement PD Hearth, as ttC is designed reach all children and focuses on promotion and prevention. However, as the approach covers pregnant women and children over the first 1,000 days, it requires at least two years’ implementation before it can bring about population-wide

changes. But ttC was implemented only in the last year and there was time to complete only the early pregnancy visits.

As a recuperative approach for moderate malnutrition, PD Hearth has an edge over others such as community management of acute malnutrition (CMAM) as the former is low-cost, uses local solutions and resources, and is community-based. Mothers do not have to go beyond their village to learn appropriate child feeding. These factors give the approach high potential for sustainability. In a demonstration of this potential, the project found that volunteer women in Islam Qala village in Kohsan district have begun organizing hearth sessions on their own. Mothers report continuing to follow the feeding practices they learnt in the hearth sessions. Communities would require external technical input such as the one BHAMC provided, to identify positive “deviant” behaviors. Common positive deviant behaviors that the project identified included giving of more frequent meals and larger quantity of food at each meal.

Diarrhea Prevention and Management: This intervention has seen mixed results, from phenomenal improvement in some indicators to declining levels in others. Caregivers’ hand washing has shown significant increase from baseline levels, particularly washing hands before feeding the child (14.6% to 35.3%) during the day preceding the survey. The evaluation found at least two contributing factors:

1. Multiple channels: This behavior was promoted through women’s meetings, hearth sessions and also through WV’s complementary interventions in WASH.
2. Resonance with caregiver priorities: Mothers report that they have always desired to care well for their children, and this practice was aligned with that desire.

However, decline in availability of soap in the place of handwashing from 41.7% in baseline to 30.8% at end line could have had an impact on consistent practice.

Point-of-use water treatment has shown a non-significant reduction since baseline (15% to 11%), but the LQAS survey at the end of the third year of the project had shown an increase to 32%. This spike was probably the result of the WASH project of WV which carried out mass distribution of point-of-use treatment in two of the four target districts which provided safe drinking water for 11,000 households for over a year, but could not be continued thereafter.

The above factors have possibly led to persisting high levels of 2-week prevalence of diarrhea at 45% since the start of the project.

Management of diarrhea through oral rehydration therapy (both ORS and homemade solution) declined from a baseline level of 40.4% (n=272) to 15% (n=48) in the LQAS survey of the third year, rising to 32.7% (n=270) at the end of the project. Though it is likely that ORS availability at health posts did not keep up with increasing demand as reported in several focus group discussions with CHWs, this does not explain the reduction in using home-made sugar salt solution.

The project used zinc supplementation in diarrhea. At the end of the project, zinc was available in all facilities in target districts. End line survey data shows that 27% children with diarrhea were given zinc supplement.

Pneumonia Case Management: Prompt care seeking for symptoms of respiratory illness has improved significantly from baseline level of 60.9% (n= 376) to 97.5% (n=160) and has exceeded the end-of-project

target. It is also notable that the reported two-week prevalence of symptoms of pneumonia has nearly halved between the baseline and end line surveys. Discussions with CHWs and review of project records reveal considerable effort in improving care seeking as well as CHWs’ case management skills. The project made antibiotics available at health posts through gifts-in-kind as part of its match contribution, covering for interruptions in supplies.

Immunization: Coverage DPT1 vaccination among children aged 12-23 months, indicating access to health services declined from its baseline level of 65.9% (n=293) to 61.8% (n=304) at endline. This coverage is even lower at 51.3% for the younger cohort of 2-11 month-olds. DPT3 coverage level, an indicator of health system performance also declined from 58.4% at baseline to 45.7%. Measles vaccination coverage for the same age group however, increased from 45.7% to 53.6%.

Qualitative inquiry across the four districts, however, reveals increasing utilization of immunization services

both from facilities and from outreach campaigns. Community leaders also report that more families than before ensure that their infants get all required vaccines by their first birthday.

During the first two years of BHAMC, outreach campaigns for hard-to-reach areas were financed from the grant, but later they were taken over by BDN through its implementation of BPHS. The project facilitated mapping of communities and planning the campaigns. These are being held regularly from August 2009, covering about 47 remote villages across two districts, reaching each location once in about three months.

Vitamin A supplementation of children aged 6-23 months has improved significantly, from 47.2% (n=443) to 58.2% (n=467). This service was also provided through BPHS through facilities and through outreach campaigns.

Triangulating all of these findings, it is highly likely that coverage for child immunizations has improved over the project's lifetime though it has not been possible to establish this quantitatively for all vaccines.

Program Result 2: Increased scale of health interventions (improved partner capacity, systems and policies)

The project has met or exceeded its targets related to capacity building of local organizations. It also strengthened the capacity of these partners to implement BPHS better, particularly community-based and outreach services. These critical inputs not only helped implement project activities but also contributed to local capacity and sustaining service delivery improvements beyond its lifetime.

The project worked closely with the Herat Maternity Hospital (HMH) in a mutually beneficial partnership. The project supported newborn care practices in the hospital through training, supervision and mentoring, and the facility provided hands-on training for midwives (through the community midwifery training program) served in the project's target locations, filling gaps in skilled birth attendance. The presence of other initiatives from WV in HMH, particularly for neonatal care, made for a strong working relationship between the facility and the project. This strategic input in HMH has contributed to significant scale as the facility serves the entire province of Herat as well as neighboring provinces.

The project used zinc supplementation in diarrhea through an agreement with MOPH, with supplies brought in as gift-in-kind. MOPH developed a national action plan for introducing zinc in public facilities in 2008, aiming to scale it up nationwide by 2010. Though the project did not directly participate in formulating the action plan, it contributed to policy dialogue.

Program Result 3: Contribution to child survival technical excellence nationally and globally

BHAMC has been a flagship program for WV Afghanistan, resulting in replication of similar initiatives funded by a range of bilateral and private donors across several provinces, drawing on technical approaches such as HBLSS and PD Hearth implemented in this project. A DfID-funded project of WV in Badghis province uses the CHW functionality assessment methodology that BHAMC used when implementing its tC intervention. Another grant from the Muskoka Initiative, focusing on maternal and under-5 nutrition and health is poised for implementation in three provinces of the country.

MOPH in Herat and Kabul have shown keen interest in PD Hearth and the success that the project has had in rehabilitating moderately malnourished children based in their own communities and at very little cost. Lessons from this implementation are likely to feed into national level dialogue on approaches to tackle acute malnutrition.

Achievements and lessons from the HBLSS intervention and the OR have been accepted for sharing during the Global Newborn Health Conference in April 2013 in South Africa.

Additionally, during the 2011 Spring CORE group meeting lessons learned during implementation were shared on HBLSS during the session on "Adapting HBLSS to Fit Your Program" and the OR during the session on "mHealth at the Community Level: Recommendations for Roll-out".

Other Interventions

Interventions implemented in BHAMC's target locations through other funding sources supported and enhanced its impact:

1. Support to staff salaries, supplies and equipment at the neonatal intensive care unit in the Herat Maternity Hospital not only met a felt need at that facility but also helped improve working relationships with staff there for BHAMC's essential newborn care messages to be better received.
2. The community midwifery program, as discussed earlier, met a critical supply-side need in target locations and was an ideal complement to the HBLSS interventions
3. The WASH project introduced in response to the high diarrhea prevalence shown in the baseline KPC survey, provided safe drinking water for 12 months for 11,000 households in two of the four target locations, in years 2 and 3 of BHAMC. The PUR powder is effective against pathogens resistant to chlorine and also helps eliminate turbidity in drinking water, a bane of the area. Turbid water turned "clear as a teardrop", says a grandmother in Karukh district. Availability of this product was possibly the reason for the improvement in coverage of water treatment practice seen in the LQAS survey in early 2012, but as supply could not be maintained beyond the life of the project, the end line survey saw a drop in water treatment practices in households.
4. Funding raised from three private sources totaling US\$300,000 helped complement the grant in implementing aspects of PD Hearth, HBLSS and outreach. This was part of the matching contribution from WV.

Assessment of the OR Study

The OR study within the BHAMC project aimed to test if the use of CommCare increases utilization of maternal and newborn health services and knowledge of important information points and improves communication with higher trained health care workers. As a secondary objective, it aimed to explore cultural and technical barriers that exist in communities and health facilities that affect successful use of CommCare or other mobile applications for health.

There were at least three facets to the intervention that was tested: one, the pregnancy and newborn care modules of CommCare in written, pictorial and audio formats; two, airtime for CHWs to communicate with facility-based staff; and lastly the availability of real-time data to the project team.

Following nearly 20 months of implementation in five villages, the OR study has shown that the addition of the mobile phone application to ongoing HBLSS intervention leads to further increases in utilization of MNC services. The intervention area had 20% improvement in women receiving at least one ANC ($p=0.006$), 12% improvement in having a birth plan ($p=0.049$) than in the comparison sites. Thus the OR intervention has been successful in reaching its outcome-level objectives.

In depth conversation with CHWs in the intervention area revealed that they are adept at using the CommCare modules to help in their dialogue with families and with community leaders. The modules served as a job aid for the CHW, reminding him/her of the key messages in a user friendly format. The use of audio prompts, meant initially only for catering to the low-literate user, has opened new and exciting possibilities, according to Dimagi, the software consulting company that developed CommCare. These are not limited by screen space, and they make household members and community leaders feel more included in the discussions. These are unanticipated positive results of the modification.

The calling facility helped CHWs communicate directly with facility staff and organize their referral and ensure that the woman being referred was promptly attended to at the facility.

Clearly, both of these aspects (the CommCare application and the calling facility) in the implementation model contributed to the improvements, though the study was not set up to ascertain their proportionate contribution to the results. This distinction will be a key factor to be analyzed in the next level of scale, as it has implications on the resources that need to be invested in the model.

Training and supervision of CHWs will be another consideration for scale up. BHAMC had a very small number to train and supervise, and hence the next level of expansion will have to carefully document the design and process of training and the cost involved.

Harmonizing CommCare data with the district-level health information system is another consideration for further expansion of the model. CHWs report that they were able to use the application to upload information on the database. However, the value-addition of having real-time information as opposed to paper-based data at the end of the reporting period is not clearly known.

Areas that are more remote than the study sites tend to have limited albeit expanding mobile phone coverage, and hence this is unlikely to be a major limiting factor in scaling up the intervention.

A key caveat in the study was the assumption of parallel trends in intervention and comparison areas in the absence of the intervention. Another set of pre-intervention measurement would have helped address it, which was not feasible given the timeframe and resources. Another limitation is the small size of the intervention area. Further analyses of factors mentioned above will be required at the next level of scale, perhaps at district level.

The study has shown, albeit in small scale, that the use of mobile phone applications to improve utilization of MNC services is both feasible and effective. The intervention tested through this OR study combined the functions of a job aid, communication tool and monitoring system, and hence can improve multiple aspects of an intervention that seeks to improve demand for MNC services.

Contextual Factors

Unpredictable security situation in target locations meant that the project staff had to plan every visit ahead of time and obtain clearances from shura leaders and from the WV security team. Planned visits would often be canceled due to inputs about potential security threats. For the same reason, several of the training events had to be carried out in district headquarters or even in Herat, which was not only more expensive but led to less than optimal participation than community-based events. This was the most significant contextual factor that affected implementation.

Training and communication material and job aids had to be adapted into visual form to cater to the very low literacy levels among women. Several CHWs who had been selected during the earlier regime were older women, and had to go through a process of unlearning. These factors slowed the pace of implementation, but helped build local capacity.

Turnover of staff was significant throughout the life of the project, leading to delays in implementation.

Lack of prior investment in MNCH in these districts is possibly another factor in the rapid uptake of messages. The interventions met areas of need that had been largely unaddressed at the community level.

As discussed in the preceding section, presence of other interventions of WV in target locations, particularly WASH and community midwifery complemented this project's interventions from the supply side and ensured rapid gains.

Table 4: Role of Key Partners

Partner	Role in Project	Results of Collaboration/Suggestions for improvements
MOPH, Kabul and DOPH, Herat	Overall leadership and direction for service provision and technical aspects of the project	Dialogue on policy for zinc initiated; more active engagement with MOPH with lessons learned from project can lead to greater contribution to dialogue process
BDN	Provide primary healthcare services, as implementer of BPHS; trainers for key technical training events; supervision of project activities; outreach services	BDN better able to plan and carry out outreach camps to remote locations Staff trained as trainers in technical approaches
WV Community Midwifery Project	Provide trained midwives to facilities in the target area	Ensured presence of skilled birth attendants in all facilities in target locations
Herat Maternity Hospital	Provide hands-on training for midwives; trainers for BFHI; MNC referral services	Increased scale of essential newborn care practices (as HMH caters to the entire province and beyond)
Health Shura in communities	Transmit key messages to communities; lead community wide discussions on MNCH actions	Improved knowledge and actions related to MNC outcomes: skilled attendance at birth, facility birth, TT2 vaccination in pregnancy

		Women and poorer households able to access services more than before
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Overall Design Factors Influencing Progress toward Results

The intervention mix and technical approaches of BHAMC were chosen to rapidly address the most prevalent causes of mortality with low cost and effective treatment and prevention interventions. The high level of effort given to MNC interventions was both by design and was driven by early positive response from communities.

The implementation model of working through community leaders was not only deemed a necessity given the security environment, but also aligned well with way rural Afghan communities operate. Once convinced, the leaders took upon themselves the task of mobilizing communities around emergency transportation and allowing women to access services. Technical input from the project was invaluable, and HBLSS was a wise choice for this purpose, which was implemented with considerable level of effort as per the project’s design. The orientation of HBLSS material to low literacy settings was another enabling factor. The project’s decision to advocate with the community midwifery training program for appointing their graduates in target locations was critical in improving MNC services.

The choice of the mHealth research topic combined a response to the high MNC need in the area and the rapidly expanding mobile connectivity in the country. These factors made for a promising intervention and also raise its potential for geographic and thematic scale up.

Another critical aspect of the implementation model was to work in partnership with the BPHS implementer. For the project team, this eliminated the need for dealing with different organizations for supply and demand issues and for BDN this gave a holistic view of issues on both sides.

The design of the IYCF component influenced related outcomes significantly. While PD Hearth is well suited to the local context and was implemented with sufficient depth and quality, it alone was insufficient to improve population-wide outcomes, as the approach is designed to reach only children who are already malnourished, and is intensive to implement and hence, slow-moving. ttC was a good choice as a complementary preventive approach to PD Hearth but it was a late entrant and had limited time for implementation. Complementary feeding practices were discussed during FHAG and other community meetings but these are generally not sufficient for the depth and intensity of dialogue and negotiation with families that complementary feeding behaviors call for. Additionally, an intentional programming focus on children under 2 was missing. However, early and exclusive breastfeeding improved significantly as they were promoted as part of household-level dialogue and community conversations for MNC interventions.

The introduction of zinc supplementation in diarrhea management was a timely influence on national policy, and is a great example of a small investment having far-reaching impact when based on global best practice.

Potential for Scale Up

A key aspect of BHAMC that has a high potential for success is the community mobilization model using the HBLSS methodology, to improve MNC outcomes. The project has demonstrated that this approach is successful at two levels: one, in improving utilization of MNC services and two, in improving community-wide attitudes toward women. Though it can be argued that the latter is a prerequisite step for the former, the changes in attitudes toward women have far-reaching effects, beyond improvements in MNC: women have a greater sense of self-worth, are confident about their care practices and have been given the space to volunteer within their communities. The HBLSS methodology was a good fit with the local context, particularly its pictorial job aids and action cards and the approach of sensitizing village leaders first, who then lead the mobilization process.

The approach and the methodology have generated interest in DOPH and at the Mission in Kabul, as a potential way to shape and improve demand for MNC services, which is critical for the country’s progress toward improving maternal and neonatal survival, and also to improve the status of women in society, another critical need. However, there have been no concrete steps taken at provincial or national levels to incorporate this approach into national policy.

The community-based nature of this approach is a key rate-limiting factor, as it requires intense and continual engagement at the community level, and investment in people trained and skilled to carry it out. The BHAMC project overcame this barrier by putting in significant level of effort and by working through a locally

recognized NGO, using their staff as trainers. The process also requires close supervision, periodic review of processes, and support to the mobilization process where required.

Key elements required for scaling up this approach beyond the target locations include:

1. Inclusion of mobilization activities in the job profile of the CHW
2. Training in the use of the HBLSS process and material using a tiered training design
3. Steps to ensure high motivational levels for CHWs, both financial and non-financial, for sustaining the use of the method.
4. Periodic review (at district and provincial levels) of the level of mobilization of communities, identification and addressing of barriers and challenges.

The HBLSS intervention in BHAMC has given a view of the extent of improvements that can be expected in similar contexts and constraints, though a detailed costing study will be required to quantify its cost-effectiveness.

The project's OR study has also raised interest among key national stakeholders as a method to improve MNC outcomes using mobile phone applications, and considerations for scaling it up have been dealt with under section F.2 above.

The other intervention of the BHAMC project that has potential usefulness at larger scale is the PD-Hearth approach for addressing moderate malnutrition. As noted elsewhere in the report, the approach has several advantages that make it more sustainable than other approaches for rehabilitating moderately malnourished children: it is low-cost, works on local solutions and is community-based. However, its design, like HBLSS makes it slow-moving and intense, requiring substantial investment at the community level. It requires a large cadre of community-based workers skilled in conducting PD inquiry and having a basic working knowledge of nutrition and the other requirements that were listed under HBLSS scale up (above). It should also be noted that, as a recuperative approach, PD Hearth targets only children who are already malnourished and is hence not suited for population-wide improvements in feeding outcomes.

CONCLUSIONS

The BHAMC project was an ambitious endeavor that aimed to improve the survival and health of mothers and children in a most challenging operating environment. It has contributed to impressive improvements particularly in maternal and neonatal care outcomes and in the process, gained significant ground in changing community-wide attitudes toward women and their healthcare needs.

The project put in a high level of effort in its MNC intervention and successfully mobilized leaders of health shuras around simple but effective actions in communities and households using the highly appropriate HBLSS approach and methodology. Sensitized leaders then showed the way for entire communities to recognize and seek appropriate care. Health shuras gave prioritized attention to poorer households. CHWs and family health action groups were the leading force behind the change brought about through sustained household and community level dialogue. The community midwifery project of WV and the choice of the BPHS implementer as the project's NGO partner ensured that supply aligned with increasing demand. Elements of essential newborn care also improved alongside maternal outcomes. Thus, by design and by implementation, the project put the needs of women and children near the top of the agenda of families and communities.

There has been no improvement in complementary feeding of infants and children, particularly in dietary diversity, despite considerable effort, owing to a combination of factors: the choice of a labor-intensive and recuperative (rather than preventive) approach, lack of focus on children under-2, and insufficient emphasis on flesh foods. A prevention-focused approach, though part of the project's design, could not be sufficiently implemented.

The project has had mixed results in management of childhood illnesses. Training of CHWs and ensuring supplies has led to significant improvements in prompt and appropriate care seeking for pneumonia. Oral rehydration treatment in diarrhea, however, has reduced since baseline, presumably due to sub-optimal efforts. Hand washing at critical times has improved significantly owing to considerable level of effort and multiple channels of promotion. Thus, improvements in coverage levels have been in direct proportion to the expended level of effort.

The project built MOH and partner capacity to carry out outreach campaigns for immunizing children in hard-to-reach areas. There is consistent and unambiguous descriptive evidence for improvements in child immunization coverage while quantitative data which shows mixed results. High baseline levels for individual vaccine coverage could not be verified.

Operations research within BHAMC demonstrated that the use of mobile phone applications to improve utilization of MNC services is both feasible and effective. The intervention tested multiple aspects of an intervention model for improving demand for MNC services, albeit at a small scale.

The project provided technical input to WV's ongoing partnership with the provincial maternity hospital strengthening the partnership for future scale-up efforts. MOPH and the USAID Mission have shown interest in the evidence and lessons that BHAMC is interested, and these are exciting scale-up opportunities for WV to continue to participate in. WV has raised considerable resources to initiate several new and expanded initiatives based on learning from BHAMC.

The evaluation team commends WV and its partners for implementing a largely successful in community-based intervention in a highly insecure and fragile environment, maximizing efficiencies and developing a model for addressing high MNC needs and in the process, boldly assisting communities to recognize and discard debilitating gender norms.

RECOMMENDATIONS

The following are some recommendations arising out of evidence and lessons that BHAMC has generated:

1. The work that BHAMC began in the four target districts requires continued support in terms of supervision, coordination, referral support and further training. It is recommended that WV continues

- to engage DOPH, provincial hospital and the local NGO that implements BPHS to carry on these activities at the level of health posts.
2. WV is encouraged to continue and strengthen the dialogue that this project began with MOPH and the USAID Mission in Kabul. This project has generated evidence on what works in a range of technical and implementation areas which can be considered for further study and scale up:
 - a. HBLSS as an effective means to mobilize communities around MNC services as well as addressing long-held gender norms and restrictions.
 - b. PD Hearth as a community-based sustainable model for addressing moderate malnutrition. It is recommended that WV Afghanistan and the Mission study the feasibility of expanding the use of the model in other locations in the country and the adaptations that will be required.
 - c. The mHealth intervention as a valuable add-on to HBLSS for improving MNC outcomes, particularly in the context of expanding mobile connectivity across the country
 3. CHWs have been the face of the project and are a critical consideration for expanding the above approaches. However, several aspects related to their optimal functioning need to be assessed and addressed within a national policy and framework. Experience from this project in assessing CHW functionality and working with them can add substantively to that dialogue. It is recommended that the USAID Mission and WV revive and lead the process.
 4. WV is commended for its efforts to expand learning from BHAMC to other districts and provinces. Based on learning from BHAMC and using available evidence, it is recommended that these new initiatives approach child nutrition through a preventive lens, reaching all children; focus on the first 1,000 days of life and emphasize inclusion of fresh foods in infants' diet.
 5. Point-of-use water treatment was a highly successful if short-lived initiative that met a long-felt need of communities. WV and its partners could explore options for sustainable solutions for safe drinking water, such as social marketing of water purification tablets.
