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PAIMAN
Pakistan Initiative for Mothers and Newborns

Pakistan Initiative for Mothers and Newborns (PAIMAN)

Project Completion Report
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Pakistan Initiative for Mothers and Newborns (PAIMAN)
was a six-year project implemented by JSI Research & Training Institute, Inc. in collaboration with Aga Khan University, Contech International, Greenstar, Johns Hopkins University Bloomberg School of Public Health Center for Communication Programs, the Pakistan Voluntary Health Nutrition Association, Population Council, Save the Children US, the National Commission for Maternal and Neonatal Health, and Mercy Corps.

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List of Abbreviations

24/7	24 hours a day, 7 days a week
AKU	Aga Khan University
AGAHE	Association for Gender Awareness and Human Empowerment
AMTSL	Active Management of Third Stage of Labor
ANC	Antenatal Care
BCC	Behavior Change Communication
BHU	Basic Health Unit
CAM	Community, Advocacy, Mobilization
CBO	Community-based Organization
CDK	Clean Delivery Kit
CEmONC	Comprehensive Emergency Obstetric and Newborn Care
CCP	Center for Communication Programs
CM	Community Mobilization
CMWs	Community Midwife
COP	Chief of Party
CPR	Contraceptive Prevalence Rate
DAOP	District Annual Operation Plan
DCOP	Deputy Chief of Party
DFID	Department for International Development (UK)
DHQH	District Headquarter Hospital
DHDC	District Health Development Center
DHG	District Health Government
DHIS	District Health Information System
DHMT	District Health Management Team
DHQs	District Headquarters
DOH	Department of Health
DOPW	Department of Population Welfare
DPC	District Program Coordinator
DSA	Decision Space Analysis
EDO	Executive District Officer
EMNC	Essential Maternal and Newborn Care
EmONC	Emergency Obstetric and Neonatal Care
FATA	Federally Administered Tribal Areas
FOM	Field Office Manager
FP	Family Planning
FWC	Family Welfare Center
GIS	Geographic Information System
GOP	Government of Pakistan
GS	Greenstar Social Marketing
HCP	Health Care Provider
HMIS	Health Management Information System
IEC	Information, Education, and Communication
IMR	Infant Mortality Rate
IMNCI	Integrated Management of Neonatal and Childhood Illness
IPC	Interpersonal Communication
IYCF	Infant and Young Child Feeding
JHU/CCP	Johns Hopkins University, Center for Communication Programs
JICA	Japan International Cooperation Agency
JSI	JSI Research & Training Institute, Inc.
LHV	Lady Health Visitors
LHW	Lady Health Workers
LMIS	Logistics Management Information System

LQAS	Lot Quality Assurance Sampling
M&E	Monitoring and Evaluation
MCH	Maternal and Child Health
MDGs	Millennium Development Goals
MIS	Management Information System
MMR	Maternal Mortality Rate
MNCH	Maternal, Newborn, and Child Health
MNH	Maternal and Newborn Health
MOH	Ministry of Health
MOPW	Ministry of Population Welfare
MWH	Mid Wife Home
NATPOW	National Trust for Population Welfare
NHIRC	National Health Information and Resources Center
NCMNH	National Commission for Maternal and Neonatal Health
NGO	Non Governmental Organization
NP	National Program
NP for PHC & FP	National Program for Primary Health Care and Family Planning
KPK	Khyber Pakhtoon Khwa
ORS	Oral Rehydration Solution
PAIMAN	Pakistan Initiative for Mothers and Newborns
PAVHNA	Pakistan Voluntary Health Nutrition Association
PC-I	Planning Commission-I (planning document)
PDQ	Partnership-Defined Quality
PHC	Primary Health Care
PNC	Pakistan Nursing Council
PPH	Postpartum Hemorrhage
PPHI	President's Primary Health Care Initiative
PPP	Public-Private Partnership
PWD	Population Welfare Department
QIT	Quality Improvement Team
RESAI	Rural Emergency Services Ambulance Initiative
RH	Reproductive Health
RHC	Rural Health Center
RMOI	Routine Monitoring of Output Indicators
SC/US	Save the Children, US
SBA	Skilled Birth Attendants
SO	Strategic Objectives
TAG	Technical Advisory Group
TBA	Traditional Birth Attendant
THQH	Tehsil Head Quarter Hospital
TNA	Training Needs Assessment
TT	Tetanus Toxoid
UNFPA	United Nations Population Fund
UNICEF	United Nations International Children Fund
USAID	United States Agency for International Development
WHO	World Health Organization
WHP	Women's Health Project
WMO	Women Medical Officer

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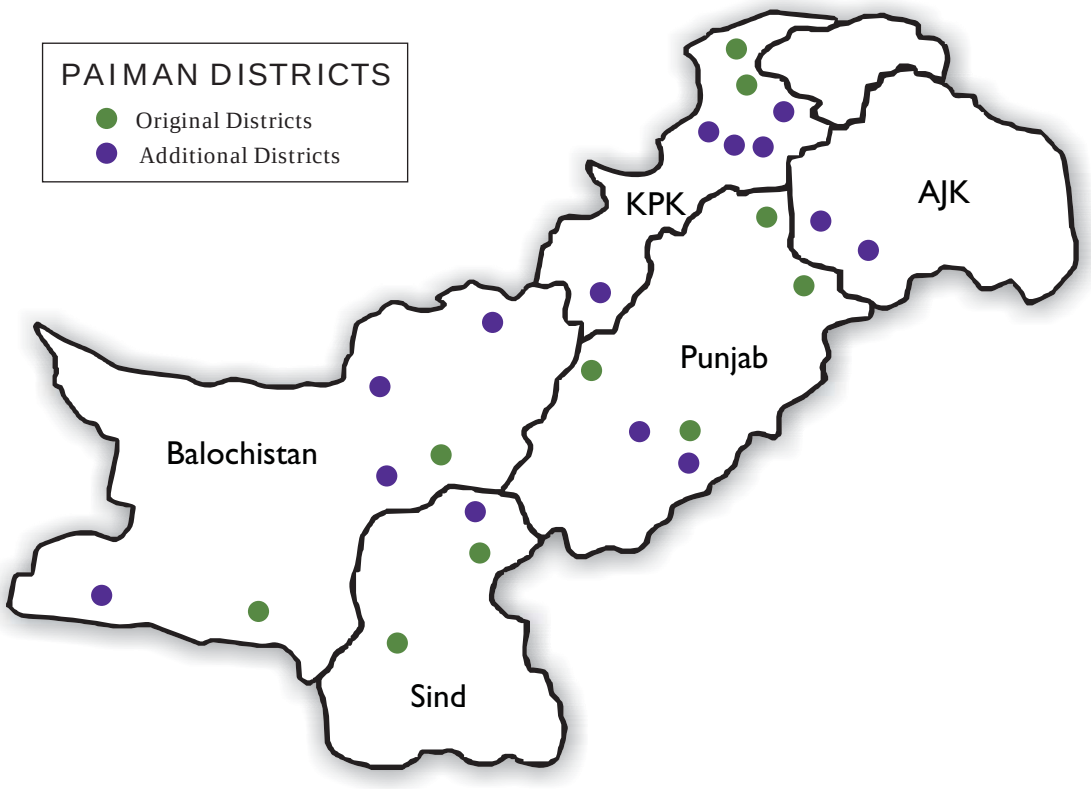
PAIMAN Districts in Pakistan



EXECUTIVE SUMMARY

Introduction

The Pakistan Initiative for Mothers and Newborns (PAIMAN) was designed to assist the Government of Pakistan (GOP) implement the full spectrum of interventions necessary to address maternal and newborn health issues in Pakistan. The initiative, funded by USAID, was planned as a five-year project. It was launched in October 2004 and was to be completed in September 2009. PAIMAN's initial mandate was to assist the GOP to improve the status of maternal and newborn health in ten districts. In 2007, the geographic scope of the project was expanded to include two Agencies and two Frontier Regions of the Federally Administered Tribal Areas (FATA), and District Swat. In September 2008, USAID awarded the consortium an expansion of the project, adding 13 more districts and increasing the scope of work to include child health and child spacing as well as an additional project year, bringing the project end date to December 2010. As a result, PAIMAN evolved into an integrated maternal, newborn, child health, and family planning project two years prior to its expected closing. The project budget was $92 million and it served a population of 34 million with a per capita expenditure of $2.70 for the six year project life.

The PAIMAN project was led by JSI Research & Training Institute, Inc. (JSI), a U.S.-based public health organization with extensive experience in leading similar projects in many countries. The team included a diverse set of partners: Aga Khan University (AKU), Contech International, Greenstar Social Marketing (GS), Johns Hopkins University Bloomberg School of Public Health Center for Communication Programs (JHU/CCP), the Pakistan Voluntary Health Nutrition Association (PAVHNA), Population Council, and Save the Children US (SC/US). The National Commission for Maternal and Neonatal Health (NCMNH), and Mercy Corps contributed in specific areas. The members of this partnership and the collaborating organizations had extensive experience in implementing maternal and newborn care and health projects in Pakistan and other countries.

The Challenge

PAIMAN was designed to address the high rates of maternal mortality and newborn mortality and morbidity in Pakistan. The PAIMAN districts are diverse both culturally and geographically, and challenges existed in working with a population characterized by low literacy levels, limited access to health services and perceived low quality of health services with serious human resource and coverage issues.

The challenge of implementation was not only restricted to the demographic and cultural setting. When PAIMAN was launched, Pakistan was going through the complex process of devolution and decentralization. The PAIMAN program interventions addressed the challenge by establishing partnerships with district health governments. In 2008, the process of devolution was challenged and provinces took charge again. This change in governance negatively affected project expected outcomes, as the health system became characterized by

chaos, postings and transfers, and stock outs of medicines. The problems of maternal and newborn health (MNH) became amplified because the health sector in Pakistan was beset with many critical problems.

The last six years were most challenging years in Pakistan. The 2005 earthquake, the assassination of Benazir Bhutto, the general elections of 2008, the internally displaced population crisis in the Khyber Pakhtunkhwa Province (KPK) in 2009, and the recent floods of 2010 further compounded the challenges.

Overall Project Strategy and Objectives

The goal of the project was to reduce maternal, newborn, and child mortality in Pakistan. PAIMAN used the "Pathway to Care and Survival" continuum of care to respond to the needs of mothers and newborns with life-saving and supportive care. PAIMAN's strategic framework was designed to support the pathway through five key strategic objectives:

- Increase awareness and promote positive maternal and neonatal health behaviors;
- Increase access (including essential obstetric care) to and community involvement in maternal and child health services, ensuring services are delivered through health and ancillary health services;
- Improve service quality in both the public and private sectors, particularly related to management of obstetrical complications;
- Increase capacity of MNH managers and care providers;
- Improve management and integration of services at all levels.

These five project objectives were met by a series of interventions including creating awareness and demand for services, capacity building, technical assistance, continuing education to the service providers and managers, as well as investing in health system planning, management, and health information systems.

The expansion in PAIMAN's geographic and programmatic scope led to several changes in the project's proposed strategy and implementation arrangements from which a specific PAIMAN model ultimately emerged. The JSI-led consortium promoted a district-managed, integrated health systems approach within the context of available resources and project goals. In pursuance of this integrated health systems model, PAIMAN organized maternal, newborn, and child health (MNCH) services in such a manner that inputs from individual (medical) and community (public health) services were jointly planned and managed, with the goal of serving the cause of people's well-being within the environment in which they were living.

PAIMAN Impact

For the first four years of project, PAIMAN targeted a population of 13 million and with the expansion in its geographic and programmatic scope, the population increased to 34 million. However, PAIMAN's outreach has extended far beyond the target districts

because of the project's capacity to leverage its investments through existing government national programs.

PAIMAN's largest contribution to health systems is its ability to demonstrate a workable model fully owned by government and other stakeholders for improving MNCH in Pakistan. This model consists of a package of household to facility based interventions carried out according to the local needs, and in partnership with communities, civil society organizations, and public and private sector actors. The model was implemented in extremely diverse socio-cultural conditions during one of the most difficult phases of Pakistan's history. Despite these challenges, PAIMAN managed to show that with a holistic approach which results in improvement in access and quality of services, major gains can be made in MNCH.

Household surveys implemented in the ten original PAIMAN districts showed statistically significant improvements for most indicators between baseline (2005) and endline (2010) results (see Table 1). Neonatal mortality went 31/1000 to 23/1000, a 23% decrease. TT2 coverage showed an increase of 8%. The number of pregnant women with at least 3 ANC visits has increased by almost 10%. As for skilled birth attendance the difference between the baseline and the endline survey results is 11%. The coverage for post-natal care visits within 24 hours increased by 13%. Finally, the household surveys measured the use of family planning in the PAIMAN district households. Current use of contraception has increased by nearly 5 percentage points from 25% to 30%. The current use of modern methods has increased from 20% to 23%.

Routine monitoring and output indicator (RMOI) data show that because health facilities were made functional 24/7, patient turnover increased along with utilization. Maternal, newborn, and child health services from 2007 to 2010 showed 33% increase in facility births, 75% increase in obstetric complications admitted, and 40% increase in emergency C-sections performed. The results clearly reflect the fact that PAIMAN messages and interventions were effective in changing behaviors within extremely diverse settings as represented by the ten original districts.

PAIMAN helped government reshape and design its policy in a manner likely to have a lasting impact on MNCH issues. The project helped to provide opportunities for key decision-makers to learn from international experiences and best practices, reflect, and modify the existing policy framework in Pakistan. PAIMAN created a certain vitality and urgency regarding the issue of maternal, newborn, and child health. It helped to put the issue high on the government agenda and attracted the attention of policy makers on the critical measures required to deal with the challenge of maternal, neonatal, and child health. For example, the Karachi Declaration on Scaling up MNCH-FP Best Practices in Pakistan, signed on October 2, 2009, was a historic pledge of the Ministries and provincial departments of health and population welfare to unite in committing to scale up selected high-impact MNCH-family planning practices, all promoted by PAIMAN in target districts.

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PAIMAN had an impact in involving and energizing existing but dormant institutional arrangements such as district health management teams, health committees, support groups, and male health committees under the lady health worker. These arrangements can all be expected to help the government refine future policy. The experience of PAIMAN in scaling up the district health information system (DHIS) in its districts and in trying to ease some of the initial problems with both the software and hardware is likely to influence the further scaling up and strengthening of DHIS.

Are PAIMAN investments sustainable?

PAIMAN's project implementation strategy was designed with sustainability in mind. This is one of the principal reasons why PAIMAN did not create any new institutional structures or parallel systems, but worked within the existing institutional arrangements available in the public health system. The project worked to strengthen public health systems, and focused on building the planning, management, supervision, and monitoring capacity at the district level. PAIMAN helped to enhance the strategic thinking capacity of key personnel within the health sector, particularly at the district level, and helped to build the knowledge base and expertise of health care professionals. PAIMAN worked very closely with the various tiers of health workers at the village and community level such as community midwives (CMWs), lady health workers (LHWs), and traditional birth attendants (TBAs).

PAIMAN worked with the private sector to help enhance the scope of services for MNCH. A special effort was made to initiate public-private partnerships. This led to several sustainable arrangements, such as for transport of obstetrical emergencies that are expected to last beyond the project life and provide a model for others. PAIMAN also worked closely with the media and invested in the long-term capacity of journalists. Today, there are a large number of programs on television which address the issues of maternal and child health. While it is difficult to attribute any connection between PAIMAN and the proliferation of such programs, it is

- Building the capacity of the public health sector to plan for and deliver MNCH services;
- Encouraging and strengthening the private sector to provide services and demonstrating the potential for public-private partnerships;
- Building the role of the community in a broad range of areas including monitoring, supervision, quality control, facilitation, and support.

In the last year of the project, PAIMAN worked closely with key government stakeholders to apprise them of best practices and lessons learned from the project's experience.

Two interventions will need special attention after the end of the project. The first is the *CMW Initiative,* which is at a stage where the system related interventions must be streamlined and fine-tuned, so as to ensure quality service delivery by the CMWs. Also, several policy level and organizational development issues still need to be addressed. The second intervention is DHIS scaling up. An integrated MNCH/FP approach and interventions require replacement of health management information systems (HMIS) with DHIS, so efforts need to be continued to provide ongoing support to provinces to scale up DHIS, particularly in Sindh and Balochistan provinces.

Key Indicators Monitored Th rough PAIMAN Implementation

	Objectively verifiable Indicators of achievement	Results	
		Baseline 2005	Endline 2010
1	Neonatal mortality	30/1000 live births	23/1000 live births
2	Percent of births assisted by skilled attendants	41%	52%
3	Percentage of women aged 15-49 who received 3 or more ANC visits during last or current pregnancy	34%	44%
4	Percentage of pregnant women who report receiving at least 2 doses of TT during last live birth	48%	56%
5	Percentage of women who report having a postpartum visit within 24 hours of giving birth	40%	53%
6	District health budgets show an increase of 50% or more over the life of the project (all sources excluding USAID)	Rs. 1.300 Million	Rs. 2.078 Million (60%)

A. Introduction

The Pakistan Initiative for Mothers and Newborns (PAIMAN) was designed to assist the Government of Pakistan (GOP) in implementing the full spectrum of interventions necessary to address maternal and newborn health issues in Pakistan. A five-year project, funded by USAID, PAIMAN was initiated in October 2004 and was to be completed in September 2009. PAIMAN's initial mandate was to assist the GOP to improve the status of maternal and newborn health in ten districts (Annex 2). In 2007, the geographic scope of the proj ect was expanded to include two Agencies and two Frontier Regions of the Federally Administered Tribal Areas (FATA), and District Swat. In September 2008, USAID awarded the consortium an expansion of the Project, adding 13 more districts and increasing the scope of work to include child health and child spacing as well as an additional project year, bringing the project end-date to December 2010. As a result, PAIMAN evolved into an integrated maternal, newborn, child health , and family planning project two years prior to its expected closing. The Project budget was $ 92 million and it served a population of 34 million with a per capita expenditure of $2.70 for the six-year project life.

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JSI had overall responsibility for providing leader ship and management of the project as well as exercising oversight and monitoring. In addition, JS I was responsible for technical support and backstopping for the components dealing with enhanced access and quality of MNCH and FP services. Consortium partners had the following responsibilities:

- Aga Khan University assisted with the review and design of curriculum and impact assessment of trainings, and undertook several operations research studies.
- Contech International was responsible for health systems strengthening and for infrastructure upgrading.
- Greenstar Social Marketing was responsible for the private sector component, including the development of public-private partnership models.
- Johns Hopkins University Center for Communication Programs developed the Behavior Change Communication/Advocacy/Mobilization strategy and the dissemination of messages through the mass media.

- The Population Council oversaw monitoring and evaluation including operations research and knowledge management.

- The Pakistan Voluntary Health and Nutritio n Association was responsible for undertaking community mobilization interventions in the Sindh Province.

- Save the Children US managed overall coordination and implementation of community mobilization activities in districts, capacity building and partnership defined quality (PDQ).

B. The Challenge

PAIMAN was designed to address the high rates of maternal mortality and newborn mortality and morbidity in Pakistan. The PAIMAN districts are diverse both culturally and geographically, and challenges existed in working with a population with low literacy levels, limited access to health services and perceived low quality of health services with serious human resource and coverage issues.

The challenge of implementation was not only restricted to the demographic and cultural setting. When PAIMAN was launched, Pakistan was going through the complex process of devolution and decentralization. The PAIMAN program interventions addressed the challenge by establishing partnerships with district health governments. In 2008, the process of devolution was challenged and provinces took charge. This change in governance negatively affected project expected outcomes, as the health system became characterized by chaos, postings and transfers, and stock outs of medicines. The problems of maternal and newborn health became amplified because the health sector in Pakistan was beset with many critical problems.

The last six years were most challenging years in Pakistan. The 2005 earthquake, assassination of Benazir Bhutto, genera l elections of 2008, IDP crisis of 2009 due to insurgency, and the recent floods of 2010 further compounded the challenges.

The problems of maternal and neonatal health became amplified because the health sector in Pakistan was beset with many critical constraints. Pa kistan has an extensive network of public sector delivery facilities, yet the system reached only ab out a third of the country's population. Public health facilities were underutilized as there was a high degree of staff absenteeism. The system required better linkages with the communities it intended to serve. The problem of non-availability of providers, especially female providers at the public health facility, needed to be addressed. Management systems at the district level, including referra l systems, supervisory systems, and health information systems, were weak. While the private sect or provided a major share of curative health services, it was unregulated and there were quest ions regarding the quality of service being provided. The public sector was the most important service provider for isolated rural communities and for the provision of preventive services. It needed improvements in several areas including

physical facilities, supply of drugs, logistics, equipment, and enhanc ement of provider capabilities, especially in counseling and clinic management.

Also, while the project had an overall budget of $92 million, it was expected to cater to an area of 34 million people. Thus the per-capita allocation of the project was only $2.70 for the six year project life.

C. Major Opportunities and Constraints

PAIMAN's initial assessment was that several o pportunities were present to improve maternal and neonatal health in Pakistan which could lead to rapid progress:

- Pakistan's commitment to achieving the Millennium Development Goals of decreasing the infant mortality rate by two thirds and the maternal mortality rate by three quarters by 2015.

- The GOP's commitment to adopting the National Maternal and Child Health Policy and Strategic Framework (2005-2015) and its implementation through the National Maternal and Child Health Program.

- Pakistan's ambitious health sector reform agenda focused on building devolved district health systems and the realization of the need to develop community-centered solutions to current health problems.

- The commitment of various donors, including WHO, USAID, DFID, UNICEF and UNFPA, to invest in maternal and child health and to develop joint strategic frameworks in collaboration with the GOP.

Within this favorable political and strategic context, PAIMAN also recognized that various organizational, financial, and socio-cultural constraints continued to prevail and threaten the achievement of the project's ambitious goals and objectives. Pa kistan's health system was a complex mix of public and private service delivery systems, suffering from major inefficiencies. The inability in the past decades to ensure skilled birth attendance to the majority of mothers and newborns was a significant symptom of the inadequacy and inefficiency of the health system. In addition, some of the key constraints that had to be confronted included:

- The lack of awareness of the communities towards maternal and neonatal health risks.
- The complex and varied socio-cultural settings in the country which had gradually become even more difficult because of the spread of fundamental ideologies and the worsening of the security situation.
- The bureaucratic and inefficient public sector with the lack of incentive systems, lack of accountability, frequent transfers of civil serv ants, and inefficiencies in staff deployment and performance.
- The continued low level of health spending and lack of health financing mechanisms to ensure equitable access to health care for the population.
- Human resource constraints in ensuring availability of skilled female staff to attend to pregnant women and newborns.

- The continued existence of vertical service delivery programs being managed by the federal level which threatened the building of integrated district health systems.
- Devolution challenges including the insufficient definition of roles and responsibilities and low priority of the health sector in accessing resources at the district level.
- The multitude of stakeholders and partners with overlapping programs and lack of co-ordination.
- The lack of a regulatory framework for the private sector.

D. Overall Project Strategy and Objectives

The goal of the project was to reduce maternal, newborn, and child mortality in Pakistan. It was expected that PAIMAN investments would help to tackle one of the most obstinate indicators that has defied government attempts to reduce infant mortality rates. PAIMAN's vision of success fully endorsed the vision proposed in the National Maternal and Neonatal Health Strategic Framework which was as follows;

> *"The Government of Pakistan recognizes and acknowledges the access to essential health care as a basic human right. The Government's vision in MNCH is of a society where women and children enjoy the highest attainable levels of health and no family suffers the loss of a mother or child due to preventable or treatable causes. The Governme nt of Pakistan henceforth pledges to ensure availability of high quality MNCH services to all, especially for the poor and the disadvantaged."*

The GOP's National Strategic Framework which combined maternal and neonatal as well as child health provided the roadmap for the PAIMAN project. PAIMAN used the "Pathway to Care and Survival" continuum of care to respond to the needs of mothers and newborns with life saving and supportive care. PAIMAN's strategic framework was designed to support the Pathway through five key strategic objectives:

- Increase awareness and promote positive maternal and neonatal health behaviors;
- Increase access (including essential obstetric care) to and community involvement in maternal and child health services and ensuring services are delivered through health and ancillary health services;
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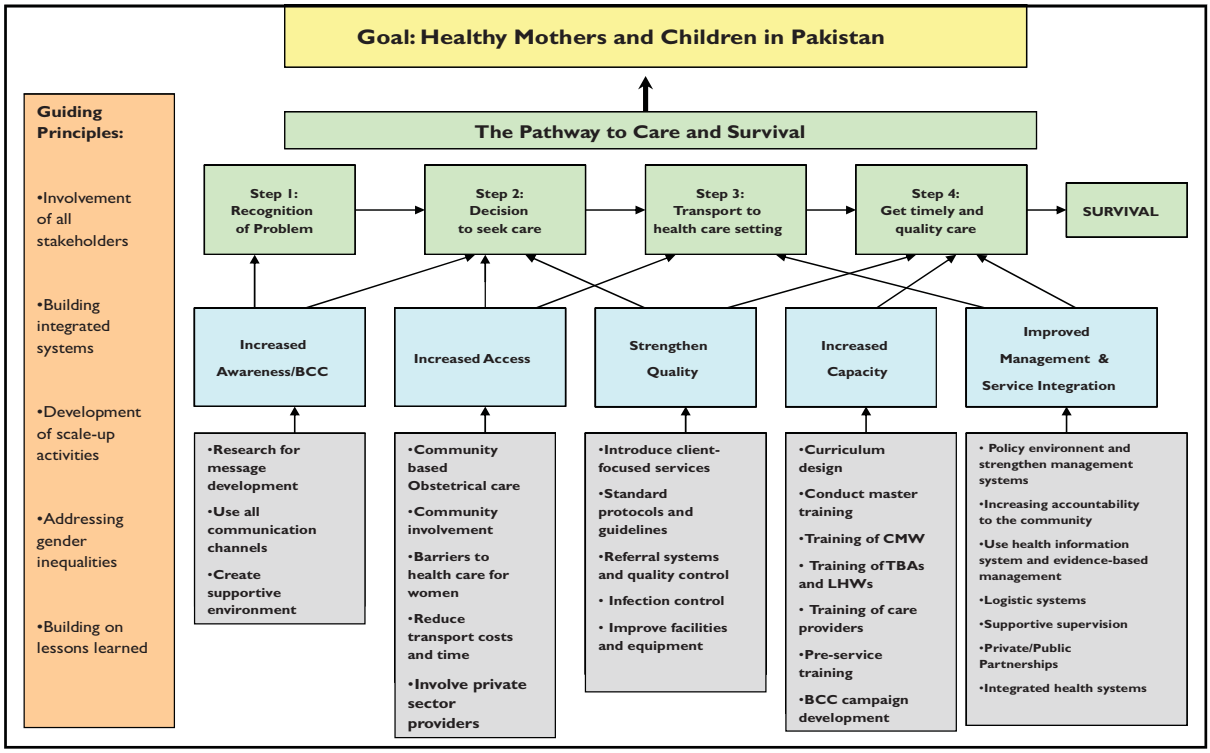
These five project objectives were met by a series of interventions including creating awareness and demand for services, capacity building, technical assistance, and continuing education to the service providers and managers as well as investing in health system planning, management, and monitoring. A diagrammatic representation of PAIMAN's strategy is outlined on page 17.

PAIMAN followed some key guiding principles which included involvement of all stakeholders, building integrated systems, development of activities which could be scaled up, addressing gender inequalities, and building on lesson learned. To operationalize these principles, the Pathway to Care and Survival Model relied on the concept of shared responsibility throughout all levels of the health system. The JSI-led consortium ensured adequate consultation with all stakeholders, including the

Pathway to Care and Survival



communities, the GOP, the private sector, and dono rs involved in the health sector. PAIMAN constituted a Technical Advisory Group (TAG) for reflection and guidance on the development of appropriate implementation strategies and consideration of effective interventions for scaling up and replication.

E. The PAIMAN Model

This integrated health systems approach not only addressed immediate health care needs but also addressed more distant health determinants, such as lifestyle an d the environment. PAIMAN realized that the key to the success of an integrated health system was positive health-seeking behavior through increased levels of awareness, effective community mobilization for health promotion, and active participation and increased access to quality health services. The integrated health systems approach translated into improved coordination of interventions geared toward the mother, the newborn, and child health. The inclusion of child health and family planning interventions in the scope of the project allowed PAIMAN to offer a comprehensive package of priority interventions to address the holistic needs of the mothers, the newborns, and children.

PAIMAN's assessment was that the outstanding challenge to decreasing maternal and neonatal mortality was to ensure that all women had access to skilled attendants throughout childbirth and the postpartum period. This would help to improv e all three related MDG indicators, especially a reduction in neonatal mortality.

PAIMAN's understanding was that while it was a long-term strategy to have a skilled birth attendant available to each woman and newborn, short-term solutions could be built around a better use of existing traditional birth attendants (TBAs). While it was difficult to envision that TBAs could be a solution to the skilled attendance problem, they could not be ignored, as they were the only attendants available to 61% of women at the time of delivery. In most rural areas, other innovative strategies needed to be developed to provide skilled attendance. One of the most obvious options in Pakistan seemed to be to train midwives to serve directly in the community.

While skilled attendants were necessary, alone they were not sufficient for ensuring access to appropriate and quality maternal and neonatal care. The community midwives could only be successful if there with a strong behavior change communication (BCC) strategy in place along with a functional health system for referrals.

According to the 2007 Pakistan Demographic Health Survey, 1 in 89 women in Pakistan died of maternal causes. Of these, 1/3 are attributed to obstetric bleeding. About 27% of maternal deaths are due to postpartum hemorrhage (PPH). Occurring within 24 hours of delivery, approximately 70% of these could be attributed to uterine atony, a condition which could be prevented with Active Management of the Third Stage of Labor (AMTSL), which reduces the event of PPH. Although easily delivered, AMTSL must be supervised by trained health care providers linked with essential supplies. Building on best practices, PAIMAN provided training in AMTSL and use of the partograph in all project districts to health care providers involved in deliveries. PAIMAN collaborated with the Ministry of Health to include AMTSL and use of partograph training in national-level policies, guidelines, protocols, and health facility standards.

The PAIMAN approach evolved into a strong model due to the incorporation of lessons that were learned during the implementation of the project. The model counted on new constituents, partners, and champions from among policymakers, private-sector entities, civil society organizations and community leaders to create a social movement to improve maternal and newborn outcomes. NGOs and the District Health Management Teams were prongs of this strategy. PAIMAN improved the implementation of interventions that were being carried out at scale, but were implemented poorly. This included the expansion of the messages by the LHWs, ensuring that the workers included messages regarding birth preparedness and birth spacing. PAIMAN included an approach to address AMSTL, newborn resuscitation, outreach through special health camps, and access to transport facilities through innovative arrangements such as the ambulance initiative, RESAI. PAIMAN's model also depended upon replicating community and facility-based interventions or approaches that had proven successful on a small scale, but had yet to be adopted by other programs or partners such as 24/7 functional health facilities, the Integrated Management of Maternal, Neonatal and Child Illnesses and Emergency Maternal and Neonatal Care.

Bakht-un-Nisa: Raising the Level of Awareness and Linking Mothers with Maternal Health Information

"I used to hear that prevention is better than cure, now I have started believing it." — Mrs. Bakht-u-Nisa, wife of Abdul Qadir lives in Bela Goth Rawani in Lasbela district. She is now pregnant for the third time in her 5 years of marriage. Bakhtu-Nisa has had difficult pregnancies in the past, but has accepted it as the will of God. She came to attend one of the meetings arranged in her neighborhood by PAIMAN with mothers and mothers-in-law. Here she came to know about the danger signs of pregnancy. She shared her symptoms of dizziness, vertigo and headaches with one of the community members. With the help of one of her neighbors she visited the rural health center where the staff had received training from PAIMAN in essential maternal and newborn care.

F. The PAIMAN Approach

Evidence Based, Flexible, Diverse and Innovative

The most important aspect of PAIMAN's strategy was that it was based on empirical evidence and crafted to respond to the key constraints that ha d been shown to lead to high rates of maternal and neonatal morbidity and mortality in Pakistan. PAIMAN's Pathway to Care and Survival Strategy was focused on those aspects which could lead to high pay-offs in terms of enhancing the health status of mothers, neonates, and children. Where ev idence was lacking, PAIMAN's first step was to undertake formative research and then fashion its approach based on the findings. Throughout the project period, PAIMAN continued to underta ke research and gather information which would help in refining its strategy and enhancing its impact. One of the first initiatives to enable it to make informed decisions and plan effectively was the preparation of district health profiles. PAIMAN conducted a baseline in all project districts to help improve its knowledge base and understanding of the situation on the ground.

Care Provider Talks About AMSTL

"Ever since I learned the technique of Active Management of Third Stage of Labor during PAIMAN refresher training, I am applying it and have not witnessed a single case of postpartum hemorrhage in the last one-and-half years. I knew nothing about this technique before PAIMAN training. Thank you PAIMAN." — Ms. Sajjida Parveen, Lady Health Visitor, BHU Pinyan, Sakran Hub Lasbela.

Very early on, PAIMAN realized that it could not take a standardized approach but would have to respond to the diverse needs of hard-to-reach isolated rural communities, tribal areas with deeply entrenched norms about gender roles and responsibilities, and poor households with limited resources and access to health services. Activities were tailored to address diversity. While PAIMAN had agreed to a set of targets at the outset, the approach was flexible and where it deemed appropriate, PAIMAN modified those targets in negotiation with USAID to respond to its growing understanding about what worked and what did not work on the ground. Innovation was a key aspect of the implementation strategy to respond to the particular circumstances of its very diverse geographic and cultural terrain. As a result, PAIMAN was continuously innovating especially in areas where the conventional approach to health care provision had clearly not been successful in the past. PAIMAN devised an accelerated education program for educating young women from Balochistan when it became apparent that a special solution was required for this province where women simply did not have the basic qualifications for enrolling as CMWs. PAIMAN worked in innovative ways with a range of partners to establish birthing stations for remote communities, addressing emergencies through arranging for a reliable system for identifying blood donors and screening, establishing community revolving funds for transport, and other services. The flexibility in PAIMAN's approach, willingness to learn from findings and experience, and ability to innovate and not slavishly follow targets has made the project respond in unique, viable, and effective ways to the challenges of maternal, neonatal and child health in Pakistan.

Innovation was a key aspect of the implementation strategy to respond to the particular circumstances of its very diverse geographic and cultural terrain.

Systems Oriented, Participatory and Sustainable

PAIMAN adopted a systems oriented approach to the health sector. The project realized that in order to work effectively, the various parts of the system would all have to function in unison. At a time when most projects had shown lack of confidence in the public health system, PAIMAN placed the focus firmly back on the public health system and tried to rejuvenate the system and create confidence by strengthening key aspects of the public health's management system, human resource capacity, training capacity, health information systems, and status of physical infrastructure. At the same time, PAIMAN worked in a participatory manner with government and shared its rationale and strategy in key areas. As a result, the government has adopted much of PAIMAN's work, and many PAIMAN initiatives have been integrated into the public health system. This has added an element of sustainability to key elements in the PAIMAN strategy such as its communication strategy, community participation strategy, and models of public-private partnership. PAIMAN's focus on the district level to provide leadership to the health sector through strengthening of the concept of District Health Management Teams and the facilitation of the strategic District Annual Operational Plans helped to transform the way local managers and elected representatives viewed the health sector and canvassed support and additional resources for it.

Building Partnerships in a District Managed System

An underlying feature of the PAIMAN strategy was to work in partnership with a broad range of players in a manner that recognized and built on the strength of each partner. Not only was this the founding principle of the consortium which conceived PAIMAN, but this was also the implementation strategy practiced by the project in the field. Thus, PAIMAN worked with the private

sector in recognition of its role as a major provider of MNCH services. PAIMAN also tried to enhance the quality of the private sector providers by putting a quasi-regulatory mechanism in place through the GoodLife franchise model.

PAIMAN fashioned a comprehensive strategy of partnership with the media which is playing an increasingly important role in the country in enhancing awareness about key issues and promoting accountability through wide outreach. The media was a vital part of PAIMAN's communication strategy. PAIMAN televised district talk shows, telecast a specially scripted drama series, music videos, and a feature film. The project arranged briefing sessions for journalists and increased the media's level of awareness and capacity for reporting on MNCH issues. The TV drama produc ed by PAIMAN was telecast free of cost on several Television Channels (PTV, ATV and AVT Kh yber) because of its high quality and potential to attract a large viewership. Subsequently, seve ral other TV channels started broadcasting talk shows on MNCH issues.

PAIMAN worked with NGOs to cr eate partnerships. This not only provided the project a means for alternative outreach to areas where there were no public facilities and LHWs, but also helped to strengthen the long-term institutional capacity in these remote communities. PAIMAN provided a new impetus to support groups and health committees under the National Program for Family Planning and Primary Health Care by enhancing their appreciation of the positive role they could play in helping to address the problems at the village level. Many new initiatives and innovations were undertaken by the partners who organized local transport and revolving funds at the community level for emergency obstetric cases to reduce delays in getting women from the home to the hospital. Through public-private partnerships, PA IMAN helped to structure arrangements which enabled the private sector to step in to address constraints on the public sector such as payment of salary of a qualified technician to operate the blood bank in the THQ Hospital in Mian Chanu. Another initiative was the assumption of responsibility for ambulance management and arrangements for emergency transport by local communities.

Role of Ulama, Gender Aspects, Role of Men, Shared Responsibility

An abiding theme of all PAIMAN messages was to promote the notion of the role and responsibility of men in helping to address the challenges surrounding MNCH. Reaching men was a key aspect of the PAIMAN targeting strategy. This message of shared responsibility and the role of men was repeatedly conveyed in all media products, street theatres, puppet shows, training and orientation sessions, community dialogues, brochures, and newsletters. In order to enhance the credibility of this message, PAIMAN used innovative techniques in selected districts where it knew that the more conventional systems of communication would not hold as much sway as the mosque or the local *ulama*. PAIMAN developed special initiatives for the participation of *ulama* in districts where this was considered a more appropriate means of building support and behavior change among the men. People dressed in finery heard the same message in the puppet show on the road which they heard in the mosque during the Friday sermon or the district level talk shows on radio or the mu-

sic video on television. Testimonials from the field repeatedly note to the importance of emphasizing the role of men and their shared responsibility, as a change in men's attitudes and perceptions has had one of the most durable impacts on changing behavior regarding maternal and neonatal health.

The Importance of Involving Men

In Dera Allah Yar at Bagan Baba Muhalla in District Jafferabad, Mumtaz is a voluntary teacher and is liked by majority in his locality. He ador es children and cares for his students as he has no children even after ten years of marriage. Th ough his wife conceived 7 times, she was unable to deliver a live baby. Mumtaz's friends and relatives tried to convince him that since his wife is unable to deliver a normal and healthy baby, he should marry again. One day he was invited in a meeting for formation of a male support group arranged by PAIMAN community mobilizers. Mumtaz now says very proudly, " ***with this new knowledge, I can now face any friend or relative, who tells me to re-marry….."***, he adds, ***"in a society like ours, we have to take the responsibility to safeguard our women, both physically and emotionally, I cannot be thankful enough to PAIMAN".***

Leveraging Existing Arrangements, Philanthropic Contributions and Self-Help Initiatives

PAIMAN was able to significantly leverage its inve stment in MNCH as a result of its ability to negotiate institutional change, modifications in existing operational strategies of nationwide government programs, cooperation from the media, private philanthropic support, and community initiatives and contributions. The adoption of PAIMAN's co mmunication strategy as part of the MNCH program and strengthening the role of LHWs with regard to MNCH services has helped to considerably leverage the initial investment of PAIMAN and extend its scope beyond the project districts. In the process, the LHWs have become further sensit ized and re-energized about the importance of working on MNCH issues. Orientation of voluntary community members is likely to have a lasting impact on health seeking behavior and facilitating access to quality services. While philanthropic contributions by local communities of both volunteer time and financial resources for the community revolving fund, transport and purchase of me dicines and other essential supplies do not add up to a large amount at the moment but interest in this subject is growing and over time the contributions are expected to be significant.

G. The Monitoring and Evaluation Plan

The conceptual framework for the M&E plan built on the Pathway to Care and Survival Framework and specified the causal linkages among project outcomes. The outcomes of the project were identified as: increased demand for health services as reflected by improved health seeking behaviors of the mothers; and decreased compli cations of pregnancy and decreased case fatality rate for hospitalized mothers and children. The project was expect ed to improve health provider ability to provide essential obstetric care, better counseling, an d to maintain quality of services. By improving the skills and quality of care, it was assumed that utilization rate of the facility would increase. There was also a causal link between counseling skills of the care providers and changes in the mothers' knowledge and practices, which were to be tested during the project life. Health systems strength-

ening interventions were expected to target the public health sector and non-government organizations. Civil society partners were expected to assure community participation in and accountability of the health system. Increased accountability of the health system was expected to urge the community representatives to take actions to improve staff availability, lower absenteeism, ensure supply of essential drugs and equipment and enhance quality of care.

PAIMAN assessed all key outcomes of its interventions on an on-going basis. The trained care providers were assessed on whether they practiced the newly acquired maternal and neonatal care skills and enhanced training capacity. Similarly, supervisors were appraised on their supportive supervision skills and use of tools for checking quality standards for MNCH services. Availability of resources such as supplies and equipment were critical for providing essential obstetric care and maintaining quality standards. These services were tracked through the monitoring system and their impact on health provider performance was assessed through facility surveys and supervisory visits. The monitoring system also tracked activities related to development of MNCH policies and procedures for facilitating the implementation of the MNCH project. Similarly, the project monitored activities for integration of various reproductive health services and coordinating structures established and their functioning. PAIMAN produced quarterly progress reports and a consolidated annual report at the end of each project year.

PAIMAN monitored the five results framework indicators related to MNCH. These addressed increased maternal, newborn and child health outcomes through improved reproductive and other health services. PAIMAN also defined and measured other indicators needed to determine success of various program components at various levels. Some of these indicators were considered central for tracking project progress, and were highlighted in regular progress reports. Process indicators were also defined for the activities included in the annual work plans.

The five key indicators monitored included the following:

- Percent of births assisted by skilled attendants;
- Percent of women aged 15-44 who received three or more ANC visits during last pregnancy;
- Percentage of women who reported having a postpartum visit within 24 hours of giving birth;
- Percentage of pregnant women who reported receiving at least two doses of TT during last live birth;
- Percentage increase in health budgets of the PAIMAN districts.

The PAIMAN M&E plan promoted the principle that monitoring and evaluation was a problem-solving and learning activity. The project followed a two-pronged strategy to operationalize the conceptual framework and principles for monitoring and evaluation. The strategy promoted evidence-based management, and strengthened M&E systems, including HMIS and DHIS. The PAIMAN project created its baseline by developing a set of district profiles which provided a comprehensive health picture of each district; health facilities assessment/training needs assessments; household surveys at the district level, and neonatal mortality at the combined 10-district level, as well as beneficiary knowledge, skills, and practices related to neonatal and maternal health.

PAIMAN employed a broad range of techniques to help assess changes in the levels of awareness, attitudes, and health seeking behavior as well as the quality of services provided. PAIMAN undertook baseline and endline household surveys in the selected districts to assess the impact of the project and monitored some routine indicators in those facilities which it has assisted in upgrading. Service data from districts, upgraded public hospitals, and franchised private providers were used to regularly monitor PAIMAN performance. The range of instruments and techniques used by PAIMAN included lot quality assurance sampling (LQAS) method, evaluation of mass media products and campaigns, and evaluation of community activities which includes work with religious leaders.

While waiting for the implementation of the District Health Information System (DHIS), PAIMAN established a system of RMOI collecting output/outcome data from upgraded/franchised health facilities. In addition to data from upgraded health facilities, PAIMAN collected district wide data on key maternal and child health services from district health office's Health Management Information System (HMIS) and later from the newly established DHIS, from the Lady Health Worker-Management Information System (LHW-MIS), and from the Expanded Program of Immunization (EPI-MIS).

PAIMAN also developed a comprehensive program of operations research (OR) which was conducted under the overall M&E framework and used for two main purposes. The first was the evaluation of small-scale innovations or testing of alternative approaches to service delivery, health systems management, communications, and training. The second was detailed investigations of some aspect of MNCH to inform program implementation in that area. The major findings of the operations research studies are summarized at the end of Chapter II.

Strategic Objective 1: Increase Awareness and Promote Positive Maternal and Newborn Health Behaviors

Lack of knowledge was considered a major constraint in promoting positive maternal and newborn health behavior in Pakistan. The PAIMAN team assess ed that this lack of knowledge was due to the fact that 67% of the population resided in rural areas, literacy rates were low especially among women and decision-making rested primarily with men and elderly women in the family who did not fully understand the associated risks. Health seeking behavior was also deeply influenced by socio-cultural attitudes and religious views which were misinterpreted and contributed to the risk. The lack of recognition of danger signs by families and communities and the lack of timely referral to health facilities was a major factor in contributing to high maternal and neonatal mortality rates. The combined affect of these factors led to delays in decision making which often threatened the lives of pregnant women and the newborn. PAIMAN felt that addressing the level of awareness and promoting positive behavior was a critical component in saving lives. It was recognized that behavioral communication imparting actionable knowledge, along with improved services, could substantially improve maternal and newborn health in Pakistan.

Targets and Outputs

PAIMAN's target audience ranged from unschooled women living in remote rural villages to fairly well educated young women living in urban areas. In all, nine distinct groups of audiences were targeted. PAIMAN developed a full package of interv entions to help spread key maternal and newborn messages to very diverse constituents. The strategy that was devised used a range of dissemination techniques including building the capacity of health managers in communication techniques, use of mass media, social marketing techniques, organizat ion and training of community health workers, inter-personal and group communications, and the us e of key decision leaders in rural areas and at community levels for advocacy. PAIMAN's advocacy efforts sought to reach varied centers of power and decision-making ranging from highly conservative religious leaders in KPK, to tribal elders in Balochistan, to elected town counselors an d officials from Punjab, to leaders of NGOs and CBOs in Sindh. Identifying the right message for th e right group delivered in the most effective way was considered to be the key challenge for its Communication, Advocacy and Mobilization Strategy which was met through evidence-based interventions targeting specific audiences.

Changing Male Attitudes

"If I want change in society, I have to change myself first." Mr. Shafi Mohammad Solangi is former secretary of Union Council Sita Road in District Dadu. The PAIMAN community mobilization program influenced Mr. Shafi so much that his daughter-in-law, who was seven months pregnant, became the center of his attention and care. He took all necessary steps for her good health during pregnancy and at the same time advised everyone at home, including his son, to take good care of her by giving her proper food, iron supplements and taking her for regular medical checkups. He regi stered the name of his daughter-in- law in the nearest hospital for the birth of his grandchild and refused to hire the services of the local *Dai.*

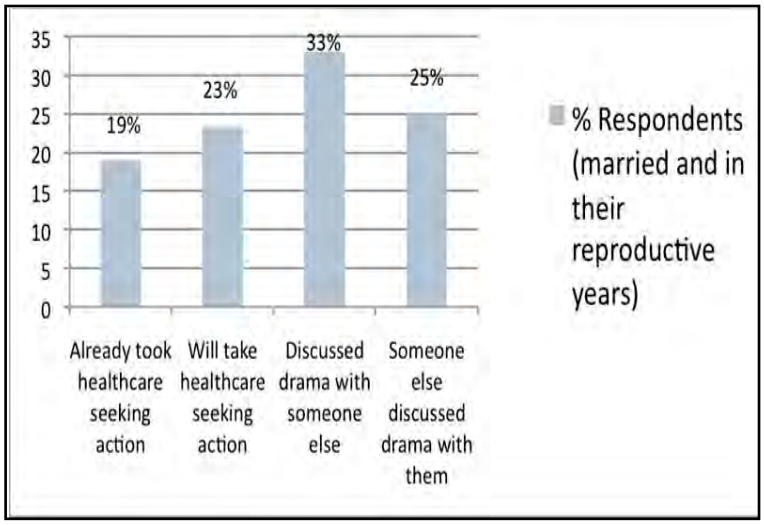
PAIMAN worked to strengthen the capacity of public health managers in communication techniques. The project trained 151 managers over the life of the project, and worked with over 400 journalists, nearly 1,000 *ulama* in the project districts, 11,057 LHWs, and 96 NGOs.

Mass Media Intervention

PAIMAN was prolific in its production for the electronic media. The project produced a 13-episode drama series as well as a 13-episode TV magazine show on MNCH issues and commissioned a feature length commercial film on birth spacing. It produced and aired 12 district talk shows on television which generated a great amount of interest in MNCH issues among district leadership. It produced and aired 39 different types of radio shows, 3 music videos, and nine television commercials. Overall, more than 40 hours of diverse television and radio programming were produced.

PAIMAN's 13-episode drama series was aired on two major TV channels free of cost. This was in addition to the free telecast of the first music video, Paiman, for 15 consecutive days on another national TV channel, which set an example of public -private partnership and cost-share exceeding the actual cost of interventions. In addition, as the result of sustained advocacy by working through senior journalists and reporters, the State Minister for Information and Broadcasting announced that every television channel would dedicate at least 10% of their commercial airing time to health promotion and prevention messages.

Impact of Drama Series on MNCH Behaviors (%, n=1,103 women)



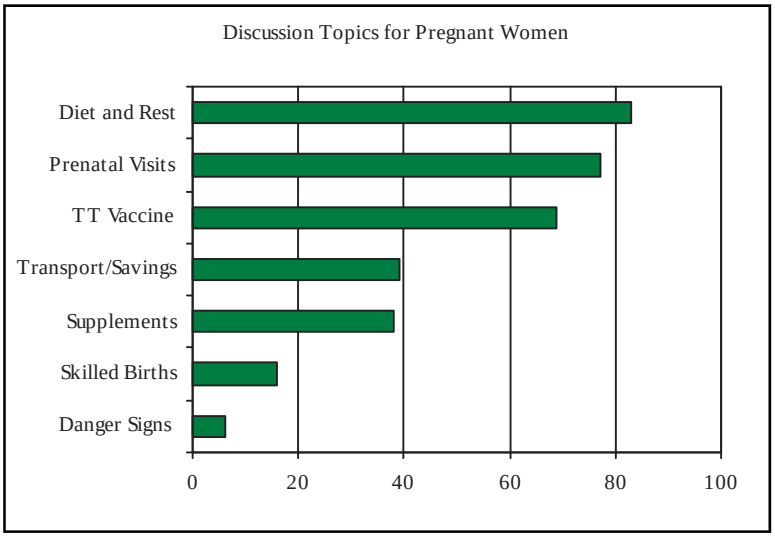
A comprehensive impact evaluation the mass media campaign and products, shows a high degree of receptivity to the messages delivered. Data from content analysis of drama scripts, viewer group discussions, and a population-based quantitative survey showed that nearly 41% of currently married women of reproductive age demonstrated behavior change towards positive maternal outcomes resulting from exposure to the drama series and TV spots. In addition, among married women who saw the drama, 42% said they had already taken a healthcare seeking action or intended to take a healthcare seeking action as a result of the drama. Nearly 60% of married women viewers reported having had a discussion about the series (see chart above).

Inter-personal communication (IPC) messages were delivered through LHWs in LHW covered areas, and through local NGOs/CBOs in non-covered areas. PAIMAN organized and supported 47,653 support groups and reached more than 4.69 million people through these groups. It organized 162 facility based health committees, held 173,834 IPC meetings, and reached more than 350,000 beneficiaries through these meetings.

Women Support Groups

The Ministry of Health is working to promote positive maternal, newborn and child health behaviors through the LHW program. Third party assessments revealed that skills of these community-based LHWs in counseling and conducting group meetings needed to be refreshed. Therefore, PAIMAN took the initiative to strengthen the skills of LHWs in group counseling through support groups on maternal newborn and child health issues. The support groups extend information and awareness to women, bring positive behavior change, and build linkages between the community and health facility staff.

Popular Topics of Discussion Based on a PAIMAN 2008 Process Assessment



The LHWs who were trained on support group methodology formed four support groups of 8-15 women and conducted two meetings per month on topics related to antenatal period, birth preparedness, post-natal period and danger signs in mother and newborn (see chart right).

PAIMAN has trained 11,057 LHWs on support group methodology. These LHWs have constituted 47,653 support groups and reached 4,686,036 women through 437,396 meetings. Pregnant participants are now better able to recognize the danger signs of pregnancy and are more confident to discuss their health needs with the decision-makers in their families. Now the participating mothers know how to take better care of themselves and their newborns.

PAMAIN has learned that training LHWs on support group methodology is a successful way to promote healthy behaviors at the community level. The woman-to-woman contact is culturally acceptable and effective. The PAIMAN endline surv ey shows that participating in support group meetings can play a very important role in influcing positive behaviors regarding mother, newborn, and child health. It is also clear that PAIMAN's follow-up meetings with LHWs have helped improve their counseling skills further. Another key lesson le arned is to involve the district health department in monitoring of support group meetings to improve the quality of meetings and promote ownership.

Involvement of NGOs in uncovered areas

About 30-60% of the area in PAIMAN districts was not covered with LHWs. Local NGOs were awarded sub-grants to work in non-LHW areas so that 100% of the district is covered. NGOs were mobilized to support local communities to take charge of their needs and improve maternal and newborn health, and to build strong public-private partnerships at all levels. Capacity of NGOs was built to implement and contribute to the community based interventions promoting the use of

maternal health, newborn care, child and reproductive health services as well as to reduce the barriers affecting the use of such services in areas where the health system was not functional.

The NGOs were given specific scope of work to be implemented in target areas according to the socio cultural setup.

- Communication, Advocacy and Mobilization (C AM) activities included awareness sessions, street theaters/putlee tamashas, and celebration of important days and events.
- Improving access activities included free medical camps with inclusion of FP components, arrangement of emergency transport, orientation of TBAs on clean delivery practices, follow-up of trained TBAs on clea n delivery practices, refresher training of TBAs, TT vaccination of pregnant mothers, an d identification of defaulter cases in EPI and follow-up.
- Innovations included establishment of birthing centers, establishment of emergency transport systems, and establishment of em ergency revolving funds at community level to cater for the MNCH emergencies.

During the process of implementation, the sub-grantee NGOs reached 2,103,284 community members to sensitize them on positive maternal, newborn, and child health behaviors, including ANC, PNC, nutrition of mothers and newborn, care of the newborn, planning and overcoming delays, importance of TT and EPI vaccination, an d other MNCH messages. Mid-term assessments of the knowledge and attitudes of the communities in non-LHW areas where local NGOs were working showed remarkable improvement. The PAIMAN evaluation by USAID strongly recommended to, "Increase program and project spending on in terventions at the community level (e.g., community support groups, community NGOs, etc.) th at lead to more sustainable outcomes."

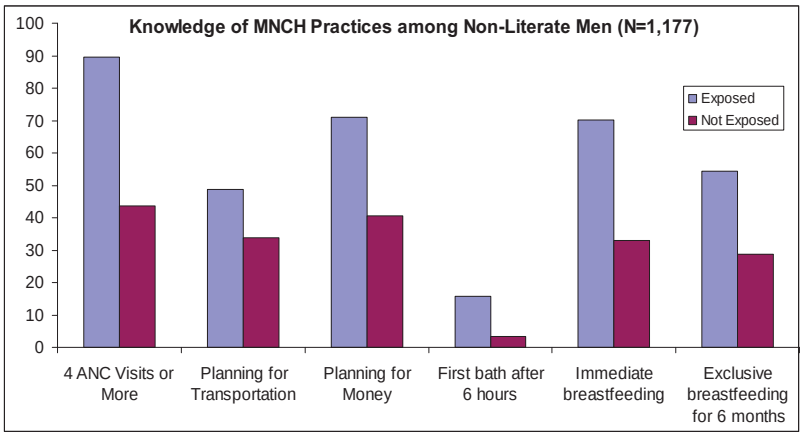
Addressing Diversity

PAIMAN implemented a package of need-based interventions matching the wide diversity of its audiences and the complexity of the task at hand. The intervention packages for each district were carefully selected in view of the socio-economic and cultural conditions as well as the knowledge and behavioral needs of key audiences identified through baseline and formative studies and other research carried out. Most PAIMAN in terventions, such as networking of *ulama*, *putlee tamashas,* and videos on wheels were designed for specific areas of selected district to ensure outreach to a wide variety of audiences.

In the relatively conservative, Kh yber Pukhtunkwa and in selected rural union councils of districts in Punjab which have low reach of mass media an d community health workers, PAIMAN involved mosques and *ulama* for improving knowledge and attitudes about MNCH issues. The interventions entailed carefully mapping all influential mosques and religious personalities in selected areas. A central shoora comprising senior most *ulama* designed a package of interventions and conducted individual and group meetings with the mapped *ulama*. *Ulama* were requested to speak on MNCH issues and the responsibilities of men in their Friday sermons.

An evaluation of the interventions showed significantly higher knowledge of and attitudes towards positive MNCH practices among all groups of men, but the differences were most significant among

illiterate men exposed to *ulama*-delivered messages, compared to illiterate men who were not exposed (See Figure Right).



Noting the popularity and effectiveness of folk media, PAIMAN experimented with special puppet shows in areas where the practice was culturally acceptable. Puppet shows were held in rural Punjab and Sindh after carefully mapping villages where the reach of mass media was severely limited. Specific MNCH messages targeting men and women of reproductive age were entwined into the stories and characters of the puppet shows, effectively combining storytelling with songs and dances. In addition, PAIMAN dramas, TV sports, and music videos were shown on mega screens set up in special tents in selected remote union councils of Punjab and Sindh. The intervention, "video on wheels", ensured reach of PAIMAN mass media products even in areas where theses product might not have had a wider viewership.

Policy and Institutional Aspects

PAIMAN has had considerable success in bringing about policy and institutional changes for MNCH service provision in Pakistan. Some notable achievements can be recorded as follows:

- The most significant and sustainable aspect of PAIMAN's Communication, Advocacy, and Mobilization (CAM) strategy was its acceptance as an integral part of the government's CAM strategy. This development can be attributed to PAIMAN's approach of fully engaging partners in designing and implementing its strategies and incorporating the concerns and view points of key partners in designing its approach. The PAIMAN communication strategy was adopted by the Ministry of Health (MOH) in the National MNCH Project.

- In July 2008, PAIMAN supported the Ministry of Health in prioritizing and finalizing MNCH messages after many rounds of consultations with stakeholders including public and private health practitioners, health managers, and subject specialists. These meetings resulted in notification of 15 key messages related to MNCH and family planning to be promoted by all stakeholders.

- The Behavior Change Communication (BCC) Team of PAIMAN partnered with the National Program for Family Planning and Primary Health Care (NP for FP & PHC) to establish a Research and Publication Cell for its BCC activities. PAIMAN technical assistance was instrumental in strengthening the cell and helping it to modify the existing

behavior change communication strategy.

- PAIMAN also provided opportunities to key decision-makers to learn from international experiences and best practices and reflect on the existing policy framework in Pakistan. PAIMAN organized a policy level seminar in October 2009 which brought together health and population welfare stakeholders to reach an agreement called the *Karachi Declaration on Scaling up MNCH-FP Best Practices in Pakistan.*

Community midwife students attending practical training session, SON, Sindh Qatar Hospital, Karachi.

- PAIMAN's novel approach of involving and working with *ulama* has been widely recognized for its efficacy and effectiveness. It has been adopted for similar health inventions, e.g. immunization, implemented by other development partners Similarly, PAIMAN set the tradition of recognizing journalist contributions in promoting the maternal and newborn health agenda through National Annual Award schemes. This model has also been adopted by other development partners.

- PAIMAN's thirteen episode drama series was aired on two major TV channels free of cost. This was in addition to the free telecast of the first music video, *Paiman*, for 15 consecutive days on another national TV channel setting an example of public-private partnership and generating cost-share exceeding the actual cost of interventions. In addition, as the result of sustained advocacy by working through senior journalists and reporters, the State Minister for Information and Broadcasting announced that every television channel would dedicate at least 10% of their commercial airing time to health promotion and prevention messages.

The Pakistan Best Practices Policy Seminar: Karachi Declaration

The USAID Bureau for Asia and the Near East convened the Bangkok 2007 meeting of technical experts, its aim was to review MNCH-FP best practices to enhance understanding of MNCH-FP issues and obtain country participant commitments to scale-up best practices. The attending Pakistan Team representatives from MOH, MOPW, USAID, UNFPA, WHO, and White Ribbon Alliance Pakistan (WRA-P) developed a Pakistan Country Action Plan.

The Pakistan Team agreed to follow-up with a national seminar, where the Country Action Plan would be finalized and shared with policy makers and consensus and support fostered. The selected following are best practices for Pakistan:

- Active management of third stage of labor
- Introduction of low osmolarity ORS and zinc
- Prevention of newborn hypothermia through affordable remedies like drying, wrapping, delayed bathing and early breastfeeding
- Implement newborn resuscitation practices
- Pneumonia case management by LHWs
- Implement post abortion care
- Expansion of contraceptive choice
- Introduction healthy timing and spacing of pregnancy
- Utilization of *ulama* for MNCH advocacy

With the assistance of the Pakistan Chapter of the White Ribbon Alliance, PAIMAN supported and organized the October 1-2, 2009 Scaling-up MNCH-FP Best Practices Policy Seminar in Karachi. Attended by federal and provincial secretaries, director generals, representatives of development partners, academicians and researchers, it resulted in signing of the Karachi Declaration, a historic pledge of Ministries and Departments of Health and Population Welfare to work in unison to scale up selected high-impact best MNCH-FP practices and develop an action plan for their execution at federal, provincial, and district levels. All stakeholders committed to have the Seminar recommendations translated into implementable and workable provincial- and district-level action plans.

Impact of Interventions

PAIMAN's efforts have helped to build and expand the knowledge base of health workers at the village level who have in turn helped to raise awareness at the household level. Knowledge gaps in recognition of danger signs during pregnancy and delivery, postpartum, postnatal and newborn care, breastfeeding practices, and birth spacing which were identified during the initial years of the project life were subsequently addressed. The inclus ion of additional messages delivered by the LHW had a significant impact on achieving the project's strategic objectives. The overall fi ndings from the various surveys conducted at the end of the project suggest that knowledge, beliefs, attitudes and behaviors of married women regarding maternal and newborn issues have improved significantly over time as a result of PAIMAN's initiatives.

"Maternal health is a shared responsibility… we have to shoulder this … while refraining from the 'business as usual' approach."

Haji Abdur Rauf, District Nazim, Buner

A comprehensive impact evaluation of its mass media campaign and products, which include the music video, television drama series, and televisi on commercials show a high degree of receptivity to its messages. Data from content analysis of drama scripts, viewer group discussions, and a population-based quantitative survey showed that nearly 41% of currently married women of reproductive age demonstrated behavior change towards positive maternal outcomes that resulted from exposure to the drama series and TV spots. More th an 71% reinforced their learning from the TV dramas by advising others in their social networks to take specific actions promoted by the dramas.

An impact evaluation of community media activities which includes the work with religious leaders and puppet shows indicated that these activities strongly complemented other community mobilization activities of PAIMAN and were extremely effe ctive in increasing knowledge among segments of the population that have traditionally been hard to reach. An evaluation of the *ulama* project in the Districts DG Khan and Khanewal showed the efficacy of the Friday sermons for communicating health-related messages. Findings affirm that the *ulama* are open to development issues and can be effective in BCC campaigns. Level of knowledge of respondents exposed to health messages communicated through religious leaders was found to be 25% higher than those not exposed.

The results of a household survey show a marked difference in the level of knowledge about key issues among households compared with their level of awareness at the time of the baseline survey. The survey covered areas such as number of An tenatal Natal Care (ANC) visits, number of TT shots, awareness regarding Post Natal Care (PNC) within 24 hours and presence of skilled birth attendant.

Strategic Objective 2: Increase Access to Emergency Obstetrics and Newborn Care

The second key objective of PAIMAN was to incr ease access to emergency obstetrics and newborn care services. The health facilities in the pub lic and private sector offered limited access, especially in rural areas. Lack of access was further compounded by the limited number of health facilities providing services 24/7. Moreover, many facilit ies were not fully functional, lacking the required equipment, supplies and human resources. In Paki stan, only 39% of the pregnant women had access

Naseem Bibi: Raising Level of Awareness

Naseem Bibi resides in Chak, District Vehari, an underdeveloped part of Pakistan, where rural villagers have poor awareness regarding mothers' health during pregnancy and postpartum. Neither health nor transport facilities are available in emergencies. In Vehari, PAIMAN worked with the Association for Gender Awarene ss and Human Empowerment (AGAHE). During awareness-raising sessions, theater performan ces, and puppet shows on mother and newborn health, AGAHE highlighted danger signs during pregnancy and their preventive and curative measures. Due to complications, Naseem's ear lier pregnancies resulted in miscarriages, and again, pregnant for the fourth time she suffe red weakness, headaches, and bleeding. After watching a PAIMAN-sponsored puppet show, Na seem and her mother-in-law learned about danger signs during pregnancy and how to deal with them. During the rest of her pregnancy, Naseem regularly went to the rural health center (RHC) in Chak with her mother-in-law for antenatal checkups. After trea tment by a lady doctor, complications disappeared. She completed four antenatal checkups, received TT va ccines, and took folic acid tablets and more food than routine during pregnancy. Having fo llowed instructions, Naseem delivered a healthy baby in the RHC. Naseem gratefully declares, " **Now me and my daughter are healthy and living happily."** She thanks PAIMAN and AGAHE for providing the awareness she previously lacked.

to skilled care at delivery, of which 5% received these services at home while the remaining 34% received services at the health facility level. Those women who needed emergency obstetric care were hampered by lack of transport facilities, espe cially in rural areas. Scaling up skilled birth attendance was the main intervention proposed at the national level to achieve MDGs 4 and 5 to reduce maternal and newborn mortality in Pakistan.

Targets and Outputs

PAIMAN provided an integrated community obstet ric care model by linking of community obstetric care with the existing health system and a support system for community obstetric care. PAIMAN worked to improve access by working with a broad range of partners such as the public health sector, private sector, NGOs, and local communities. PAIMAN's multi-pronged strategy counted on enhancing access by:

- Building capacity of existing health care providers; developing a new cadre of service provider at the community level;
- Investing in emergency facilities around the clock;
- Enhancing opportunities for referral;
- Improving access to transport facilities;
- Strengthening the community role in enhancing access through initiatives such as an emergency fund for transport services, and provision of ambulance services managed by the community.

PAIMAN's strategy focused on developing both short-term and long-term solutions to enhancing access to services. As part of its strategy to enhance immediate access, PAIMAN worked with Tra-

ditional Birth Attendants (TBAs) because its baseline studies revealed that their inclusion and active integration in the SBA strategy was important because of their widespread availability. PAIMAN provided refresher hands-on training to existing midwives and prepared a detailed plan of action to orient them to clean delivery practices, improving their ability to recognize danger signs and increasing their rates of referral to higher levels of care.

Utal Lasbela Hospital operation theatre, prior to PAIMAN implemented renovations.

PAIMAN-renovated Utal Lasbela Hospital operation theatre.

PAIMAN was instrumental in helping government create and train a new cadre of health workers at the community level as well as strengthen the capacity of existing LHVs. Low levels of education made it difficult to find qualified women candidates, especially in remote regions of the country. To address this challenge, PAIMAN worked in partnership with the National MNCH Program and Idara-e-Taleem-o-Aagahi to begin educational support which enabled graduates to meet with the matriculation prequalification criteria for enrolment in CMW training. PAIMAN also piloted an accelerated education program with the Allama Iqbal Open University to enable women candidates from remote areas to be selected as LHWs. The project identified, recruited, and trained 1,632 CMW students for 18-month training, and helped to raise the profile of CMWs as skilled birth attendants. PAIMAN also promoted the image of CMWs and organized community level meetings to ensure cooperation between different healthcare providers to enable them to support each other rather than compete.

PAIMAN helped to strengthen government capacity to train community midwives. The project undertook a detailed needs assessment of 23 midwifery schools to examine their capacity to provide physical facilities such as classrooms, boarding facilities, training aids and resource requirements for classroom instruction. PAIMAN also assessed the technical capacity of the teaching staff and helped to enhance the capacity of Pakistan's midwifery education system. It improved the training program and introduced a three-month practical training attachment at peripheral health facilities, enabling CMW students to obtain first-hand practical experience. PAIMAN supported the Pakistan Nursing Council (PNC) and provincial Nursing Examination Boards to prepare an examination methodology and built capacity to administer the *Objective Structured Clinical Evaluation* system which is also used by the International Confederation of Midwives.

Another key component for improving access to care was the establishment of 24/7 essential emergency obstetric and neonatal care (EmONC) services in selected government health facilities. As a first step, PAIMAN documented the quality of emergency obstetric and neonatal care in public and private health facilities through the health facilities assessment and the training needs assessment survey of health care providers. PAIMAN upgraded 32 public health facilities which included up-grading included all district headquarter hospitals (DHQH), about half of the tehsil headquarter

hospitals (THQH) and a quarter of the rural health centers (RHC). The MNCH facilities and services were significantly improved at the selected facilities through extensive renovation work on women's wards, delivery rooms, operation theatres, and nurseries in all selected facilities. The human resource gaps were addressed through strong advocacy for recruitment of key staff such as gynecologists, pediatricians, and anesthetists, and through training and placement of key MNCH staff. The standard protocols were developed for addressing MNCH emergencies and were displayed for reference by the health personnel. Th ese protocols were shared with the National MNCH program to be used in non-PAIMAN districts as well.

The timely transportation of women from remote, rural villages to health facilities was one of the critical points of delay for women in the throes of an obstetric emergency. PAIMAN provided 76 purpose-built and 50 RESAI ambulances to district health facilities. The RESAI ambulances are operated through local community involvement. Sensitization meetings were also held with local community and village health committees for organizing transport for mothers with complications and in emergencies. Local NGOs, working as sub-grant ees with PAIMAN, were also involved in motivating communities to organize emergency transport. However, this intervention only worked as long as project staff was facilitating the process. It is clear that any public-private innovative model has to be owned by government, and trust it local communities is extremely important.

PAIMAN's 96 sub-grantee NGOs worked to impr ove community-based access to care and involved communities in developing solutions for im proving outcomes during obstetric emergencies. Sub-grantee NGOs also held medical camps to move services closer to families. Other innovations undertaken by sub-grantee NGOs included the establishment of birthing stations for remote villages that fell outside of the current network of services. The non-functional BHUs were transformed into birthing centers. Government was resp onsible for the provision of medicines, supplies, and salaries, while the local NGO provided support of an additional LHV, and established emergency funds with the involvement of the community to ensure access to financial resources in case

Ahmed Ali Bhambro: Providing Emergency Transport Services

PAIMAN conducted follow-up meetings for MNCH/FP transport emergencies through community involvement and assessed the utilization of available transport at lower prices in emergency cases, especially at time of delivery. Fo r poor villagers, appropriate maternal health care means the difference between life and death fo r a pregnant woman and her child. Ensuring women everywhere have access to such care co uld save hundreds of thousands of lives a year. The PAIMAN team identified indigenous means of transport and established an emergency transport system in different Taluka villages. It mobilized the communities to recognize danger signs and have plans for emergency transport of pregnant women to health facilities.

Vehicle owner Mr. Ahmed Ali Bhambro of vill age Ghulam Haider Bhambro, District Khaipur said, *"I was contacted by Mr. Ahsan Ali for emergenc y delivery case at 2:00 a.m. I asked him who gave him my contact number. He replied that PA IMAN team had conducted a meeting at our village and had given him my cell number to contact in pregnancy-related emergency cases. I soon reached their village and delivered the patient to Hydery Maternity Home around 4:00 am. The woman gave normal birth to a baby boy. Both mother and fath er were so happy. Mother thanked PAIMAN for establishing an emergency transport system in her village and saving her life."*

of maternal emergencies. NGOs identified 3,421 blood donors and screened them for HCV, HBV, HIV in order to increase women's access to local and safe sources of blood.
Reaching out to and creating linkages with the vast network of private providers throughout PAIMAN districts was a critically important step in improving access to quality MNCH services. The private sector provides services to 70% of Pakistan's population; however, the sector was largely unregulated, had no formal links with the public sector, and had only a small focus on preventive services. PAIMAN worked with the private sector to promote both preventive and clinical MNCH services. Greenstar strengthened private sector services by establishing a network of franchised service providers called GoodLife. During the life of the project 50 GoodLife surgical clinics and 569 non-surgical GoodLife clinics were established. Working closely with Greenstar Social Marketing, PAIMAN introduced a health product—the Clean Delivery Kit—which dramatically improved the likelihood of delivering a baby under safe, hygienic conditions. PAIMAN, through its sub-grantee NGOs and through its partnership with Greenstar Social Marketing, provided orientation to 2,275 TBAs in clean delivery practices, provided more than 17,000 Clean Delivery Kits. Greenstar also introduced Clinic *Sahoolat*, a free consultation day performed by health care providers of GoodLife networks for low income urban communities in PAIMAN districts.

Policy Aspects

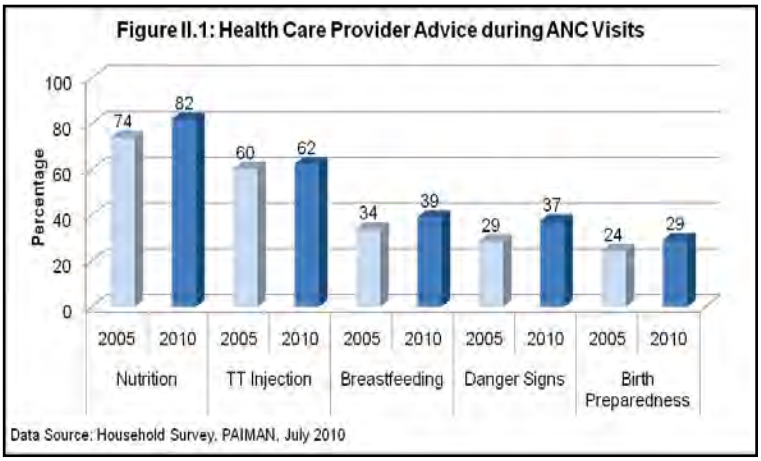
PAIMAN influenced government policy for provision of improved access to MNCH services in several ways. After years of discussion on the issue, the Ministry of Health decided to create a new cadre of community midwives in 2005. PAIMAN strengthened government capacity to refine this strategy through technical assistance and helped incorporate it into the National Program for Maternal, Newborn and Child Health (MNCH).

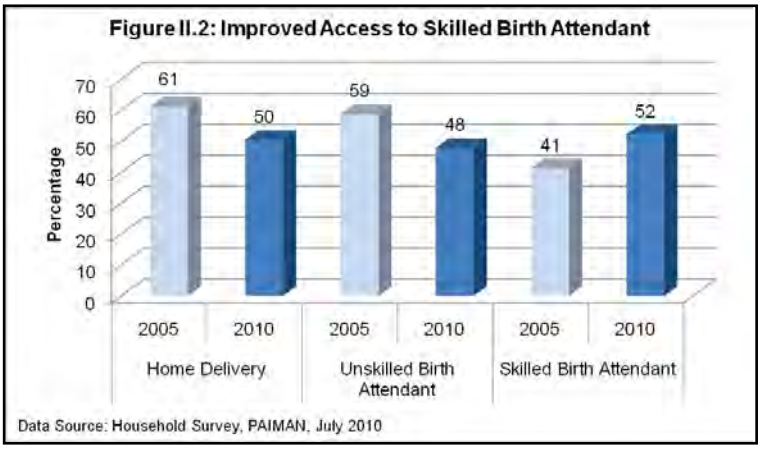
PAIMAN's long-term training program for CMWs ensured their placement in the community, establishment of midwife homes, and establishment of linkages with nearby health facilities providing EmONC services. PAIMAN also initiated a emergency referral strategy in which contact numbers of transporters and CMW referral facilities were displayed at midwife homes. TBAs oriented in clean delivery practices were introduced to CMWs through local NGOs. Through its community mobilization partners and sub-grantee NGOs, PAIMAN further strengthened CMW, LHW, TBA, and local health facility linkages. This serves as a model for the GOP to emulate across the country.

National review meetings and provincial review meetings were organized to discuss the CMW training program, including issues around quality, the tutors, practical training, and the placement of CMWs after graduation. Post-training assessment of trained midwifery tutor knowledge and skills was undertaken through the School of Nursing, Aga Khan University, Karachi. Population Council undertook operations research for CMW acceptance by the community.

Impact of Interventions

The results of the endline household survey conducted by PAIMAN which had more than 12,000 respondents shows that even though 57% of the respondents were illiterate there was a sharp increase in their access to maternal and neonatal health services between the baseline and endline surveys. There was an improvement in the scope of message delivered by the health care provider.





The frequency with which providers addressed nutrition, TT Injection, birth preparedness, breastfeeding, and danger signs of pregnancy had all shown an improvement between the baseline and endline (Figure II.1).

The results of the household survey also show an improvement in the access to health care services in the target districts. The number of home deliveries had gone down by 9%, presence of unskilled birth attendant had gone down by 11%, and the presence of skilled birth attendant had increased by 11% (Figure II.2).

Strategic Objective 3: Improve Service Quality in the Public and Private Sectors

One of the key PAIMAN interventions was to improve the quality of care in public and private sector health facilities. While a large share of health services in Pakistan are provided by the private sector, the sector is unregulated and the quality in many facilities is dubious. Greenstar's GoodLife Franchise was an attempt to introduce a regulatory aspect by ensuring a certain standard of service provision by private service providers. PAIMAN fo llowed a diverse strategy to address quality issues. The project helped to improve the capacity of service providers by introducing MNCH service standards and protocols, upgrading selected re ferral health facilities, enhancing district health manager capacity for quality improvement and develo ping a system of incentives for improved health facility performance. The project also devise d a system for infection prevention and control as well as hospital waste management and established functional integration of family planning services.

Targets and Outputs

A key aspect of PAIMAN's strategy was to enhance the demand for quality within the public sector. To this end, the project provided selected candidates training in leadership and client-centered services. PAIMAN provided technical support to district managers to assist them in developing a system of supportive supervision that promoted learning and enhanced performance.

In the first year of operations, PAIMAN worked on the development of MNCH service and quality improvement protocols for the public and private sector. The PAIMAN Consortium identified ex-

Increasing Access to Services

Teacher Allah Bukhsh has three children. The last time his wife was pregnant weakness, body aches, backaches, and related problems restrict ed her domestic duties and ability to consume a balanced diet. The only available health facility was a long way off and hard to access. No one around could help. The family was perturbed. One day, Allah Bukhsh heard about a health camp at Palleri organized by PAIMAN. He immediately asked his wife to visit it. At the camp, his wife was examined by a female doctor and diagnosed as anemic. The doctor gave her a diet chart, and iron tablets and explained the importance of TT vaccinations. Allah Bukhsh's wife was given her first TT shot at the camp. Followi ng the health camp doctor's advice, Allah Bukhsh wife's health gradually improved and sh e gave birth to a healthy baby. Allah Bukhsh and family feel fortunate to have benefited from PAIMAN's health camp. He declared, ***"We are so happy and it's all because of PAIMAN's health camp. My wife got a good orientation about how health of mother and baby could be maintained during pregnancy. Thank you, PAIMAN. You are a hope for saving mothers*** ."

isting emergency obstetric and neonatal protocols and adapted them in consultation with the Ministry of Health. Some of the standard protocols fo r antenatal care, postnatal care, normal delivery and essential newborn care were not available at basic health unit (BHU) and rural health center (RHC) levels. Similarly, some protocols for the newborn component at tehsil and district headquarters (THQ/DHQ) hospitals level were not adequate. Therefore, a working group prepared and finalized MNCH service standards and protocols for each type of facility. These were reviewed and approved for use. After printing, they were provided to all the health facilities in the PAIMAN districts.

A key PAIMAN activity was upgrading of selected referral health facilities in the Public and Private sectors according to well established quality standards. Based on a rapid assessment of civil works and equipment, PAIMAN upgraded 32 selected health facilities in its first 10 districts, and made them functional 24/7. PAIMAN also began building th e public image of selected health facilities. Brochures prepared for each of 31 upgraded health facilities were distributed during community mobilization events. Later on, in its new districts, PA IMAN upgraded another 65 health facilities. A total of 86 well baby clinics were established at PAIMAN upgraded DHQ, THQ and RHC levels. More than 40, 000 children attended the clinics. PA IMAN established 158 ORT corners at RHC, THQ and DHQ level. Each ORT corner was supervised by LHV/ MO. More then 35,000 patients were treated in ORT corners. All selected health facilities in the first 10 PAIMAN districts showed marked improvement in utilization and reduction in infection rate. PAIMAN attempted to address the issue of lack of staff in these facilities in innovative ways. The PAIMAN Consortium advocated with provincial governments for a review of policy, provided additional staff incentives and recognition, engaged in partnerships with the private sector, and approached teaching hospitals for attachment of post-graduate trainees at selected hospitals.

To build the hospital's image and attract utilization by the community, PAIMAN collaborated with medical colleges and teaching hospitals to organize specialist medical camps at various hospitals which coincided with large community mobilization events. Camps were organized at tehsil headquarter hospitals in collaboration with some of the leading hospitals such as Rawalpindi Medical College, Nishtar Medical College, Lady Wellington Hospital, and Sindh Qatar Hospital. Gynecolo-

Impact of Facility Upgrading on Client Satisfaction

"We had to spend lot of money to take our children to Lahore for specialized treatment but now USAID-PAIMAN has provided all necessary facilities at our hospital in Jhelum and now our children are treated here." Remarks by the grandmother of a low birth weight baby born in DHQ Hospital Jhelum.

gists, pediatricians, and anesthesiologists from te rtiary care hospitals provided free consultations and performed emergency and elective surgery at these events. With the assistance of Population Welfare Departments and PAIMAN, family planning services and community mobilization sessions were conducted. The resulting community trust in hospital-provided MNCH services increased utilization.

PAIMAN undertook an extensive process and review of arrangements to enable the functional integration of services between the Health and Population Welfare Departments. Initial arrangements which were adopted in District Rawalpindi and were subsequently scaled up in four more districts showed the high contribution (85%) of the LHWs in bringing eligible clients for contraceptive surgery to the RH camps. Similarly, there wa s a substantial contribution of the Department of Health in the working of the mobile service units of the Population Welfare Department. This close working relationship between the two provincial departments has resulted in adequate supplies of contraceptives for the Health Department outlets.

In collaboration with UNICEF, PAIMAN helped to build the capacity of health center providers and managers on infection prevention and control in order to strengthen the ability of providers to protect themselves and their clients/patients from infections. An infection prevention and control training course was designed that promoted internationally accepted practices through the use of low-tech and cost-effective approaches that were practical, simple, and easy to use. A pilot projec t on Hospital Waste Management was initiated in THQ Hospital Gujar Khan and RHC Mandra. This init iative included an assessment of the health facilities, a training manual and guidance for staff, a pictorial guide for training of sanitation and housekeeping staff, and the installation of an incinerator. PAIMAN conducted frequent facilitative monitoring visits to ensure satisfactory functioning of the waste disposal plants. After a brief evaluation of the pilot initiative at both facilities, PAIMAN scaled up the solid waste management practices.

Finally, PAIMAN has done substantial work on im proving the quality of the services provided. For this purpose, it used the innovative Partnership Defined Quality (PDQ) approach which involves providing community members and health facility providers with the skills and systemic support they need to improve health service quality and people's access to these services. PAIMAN initially

implemented this approach in 10 health facilities and later scaled up to 101 health facilities in 23 project districts across the country.

PAIMAN employed a variety of community mobilization strategies to introduce the PDQ approach at the community level in collaboration with district-level decisionmakers and local leaders. The four major phases of the PDQ process were:

- Building support with assistance from local health authorities and other stakeholders for quality improvement purposes;
- Exploring quality by conducting focus group discussions with service providers and communities in order to discuss quality issues and basic health rights of the individuals;
- Bridging the gap by conducting 'bridging the gap' sessions with care providers where representatives of each group present their perceptions of quality issues and after reaching a consensus agree to work together to resolve these issues;
- Working in partnership in order to create sustainable partnerships between the health care providers and community members for long-term implementation of the PDQ process.

In order to measure the success of the PDQ process, the PAIMAN team developed a comprehensive monitoring and evaluation toolkit. Quality Improvement Teams (QITs) were supported by PAIMAN staff in collecting information on monitoring indicators from HMIS registers and on selected MNCH indicators to monitor health facility utilization and to measure post-PDQ implementation progress at the same facility. Exit interviews were conducted at PDQ and non-PDQ facilities to assess end-user satisfaction. Results showed an increase in the number of outpatient clients, antenatal care visits, and child immunizations in project districts.

PAIMAN's PDQ approach led to roaring success among the community members and health care providers. Identification of resources to resolve issues led to improvement in health care facilities that improved client satisfaction levels. A prime example of this can be seen in the RHC in Garhi Mori, District Khairpur where in six months post-PDQ, the number of antenatal visits increased from 17 to 578. 62 post natal visits were recorded, 98 deliveries were conducted in the facility and immediate newborn care was provided to 98.

In order to sustain and ensure long-term impacts of the PDQ initiative, PAIMAN worked towards capacity building of QITs. As a result, QITs successfully implemented the skills learned and both the behavior of health care providers and client satisfaction level improved. Moreover, QITs were facilitated in order to develop linkages with the Social Welfare Department and President's Primary Health Care Initiative (PPHI) to register their teams with the Social Welfare Department so that they may be eligible for funding dedicated for health services from *Bait-ul-Mal* (government welfare funding) and the local government, hence ensuring their sustainability.

During the course of the project, QITs took up projects to expand the capacity of health care facilities by constructing wards, a garage and laboratory in BHU Kali Mitti of District Rawalpindi, and by independently raising donations for WatSan related equipment to ensure the provision of clean drinking water at the facilities and effectively resolved the issue of shortage of electricity by donating power cables, electric transformers and generators. They also successfully hired ambulance drivers, stocked the facilities with medicine, dust-bins, water coolers, basic equipment for antenatal

checkups, x-ray machines, and arranged for the or ientation of TBAs through EMNC-trained providers. Through influencing district leaders, one QIT wa s even able to resolve a critical staffing shortage.

PDQ has successfully bridged the gap between the health facilities and the communities they serve. Working in collaboration with each other has help ed develop a sense of initiative beyond the project phase. Moreover, orientation workshops gave rise to social accountability. Prime examples of this can be seen in Buner, Zhob and Khanewal. Va cant positions of female staff were filled at Buner and availability of lady doctors was ensured three days per week in Zhob. Health facilities were kept comparatively cleaner and client-friendly which resulted in improved maternal and newborn health.

The PDQ process, despite its succe ss, has highlighted a number of important aspects that are necessary for its long-term survival. One of the key lessons learned through implementation was that PDQ sustainability is only possible if appropriate time is invested in the implementation process, and if QITs are linked at the community level with health committees of LHWs and at the district level with District Health Management Teams. The PDQ process has also demonstrated that it can trigger an element of social accountability to improve the quality of health services. In order to do continue improvement, district health au thorities must work towards the capacity building of the QITs and recognize them as legal entities so that they may work in collaborati on with each other for the betterment of their communities.

Policy Aspects

There were several ways in which PAIMAN influe nced the way that the public sector began to manage its facilities and services, allocated staff, provided incentives, enhanced staff capacity, and integrated service provision. PAIMAN regularly ad vocated for support by district health departments to make all selected health facilities functional 24/7. As a result, duty rosters were regularly displayed, emergency medicines were available, equipment was installed and ambulances were ready to transport emergency cases. This method of working influenced the manner in which the district health facilities were managed and it is expected that this will influence government management of other facilities as well.

Through PAIMAN advocacy efforts, the government be gan placing essential staff at health facilities. The Punjab Government posted six nurses and two LHVs at all RHC; the Sindh Government placed women medical officers (WMOs) at health facilities through the Sindh Devolved Social Services Program; and the Government of KPK has renewed the contracts of nursing staff at selected health facilities. To administer the 24/7 servic es, MNCH Program's PC-1 provides for one WMO and one LHV at RHCs. WMOs are now available at many RHCs in Sindh. In Punjab, most WMO, LHV, and nurse positions were filled through th e provincial MNCH Program, improving the functioning of the health facility.

PAIMAN's use of incentives led to a proactive policy to consider performance-related incentives by some of the provincial governments who introduced both monetary and non-monetary incentives including training, appreciation letters and certificates. Salary of WMOs working in remote health facilities of KPK were doubled. Similarly, the Punjab Government more than doubled the salary of doctors working at BHUs located in remote rural areas.

Based on the pilot initiative of PAIMAN, a hospital infection, prevention, and control policy and plan were prepared. It is expected that this policy and plan will have a notable effect, will help to shape government policy at the facility level, and will encourage similar plans for all health facilities.

Based on the assessment of implementation of functional integration in four districts in Punjab, both the Health and Population Departments of Punjab have agreed to extend the process of functional integration to all the districts of the province.

Impact of Interventions

While not all of the impact of activities under this objective can be captured separately, information is available on the impact of some of the key activities. RMOI data show that because health facilities were functional 24/7 patient turnover increased and the up-gradation of health facilities had an immediate impact on their utilization. Data from the RMOI shows that utilization of MNCH services increased substantially between 2007 and 2009 (see Figures IV.6 and IV.7, page 61).

Strategic Objective 4: Increase Capacity of Health Managers and Care Providers

Addressing the high maternal, neonatal, and child mortality rates in Pakistan in its target districts was one of the main concerns of PAIMAN. Capacity building of health care providers both in the public and private sectors was therefore an important component of PAIMAN's strategic framework. Requisite skills and competencies to ensure effective service delivery at the different types of health facilities were considered key to improving the quality of care in public and private facilities.

Targets and Outputs

When PAIMAN initiated its activities, there was no in-service training program on emergency obstetric and newborn care for staff in the public sector. The government previously conducted ad-hoc training sessions which were narrowly focused. PAIMAN was instrumental in broadening the scope of the training in order to more comprehensively address essential maternal and newborn care. Not only did PAIMAN assist in conducting a broad range of training activities, it also helped enhance training capacity and instituted a system for proper identification of training needs, standards, and evaluation of training programs.

PAIMAN implemented the training activities in a step-wise manner in which various consortium partners were involved according to their expertise. PAIMAN highlighted the importance of conducting periodic training needs assessments which allowed for an identification of the gaps in the knowledge and skills of health providers in both the public and private sectors. The curriculum for various types of training sessions was then designed based on this assessment. The existing curricula was reviewed and tailored to suit the needs of the various cadres of health care providers. Training curricula were developed for each category of health care provider and were sorted by training type. Clinical protocols, IEC materials an d quality assurance tools such as participant feedback forms, pre- and post- tests, learning guides /skills checklists, and performance assessment tools were developed, pre-tested and finalized.

A health care provider training strategy was drafted and adopted through consensus building meetings in the four provinces. The training activities were rolled out through District Health Development Centers (DHDC) and Provincial Health Development Centers, an approach which helped to build the capacity of these centers, especially on the use of quality assessment tools and monitoring the training for quality standards. In addition to using standardized knowledge and skills pre and post-tests and monitoring checklists, a post six-month performance assessment of medical officers (MOs), LHVs, nurses, midwives and technicians trained on MNCH was carried out. Knowledge was assessed by a questionnaire on neonatal and maternal health care, while skills were assessed by demonstrating neonatal resuscitation and active management of third stage of labor skills.

Midwifery tutor attending clinical training session, Islamabad.

PAIMAN imparted training to health care professi onals at district-levels on Integrated Management of Childhood Illnesses (IMNCI) and Infant and Young Child Feeding (IYCF) through a well-defined plan comprising of Training Needs Assessments, review of existing curriculum, modification and development of a standardized curriculum, executio n of trainings and assessment of impact of the trainings. In addition, a robust operational rese arch strategy was undertaken to focus on testing interventions and delivery strategies which may improve child survival outcomes in Pakistan and improve determinants. PAIMAN has trained more th an 1,100 health care providers in IMNCI and more than 350 in IYCF.

PAIMAN trained a broad range of workers include community workers, first- level care providers, secondary-level health care providers, and he alth managers. At the community level, LHWs and lady health supervisors (LHSs) provide primary health care and family planning services in the public sector and as such were the key 'agents of change'. In the private sector, TBAs oversaw 80% of the home deliveries. These providers ha d no formal training and lacked the crucial knowledge and skills

to ensure safe and adequate pregnancies and deliveries. In addition, PAIMAN also provided specialized training in IMNCI, IYCF, and communication skills.

PAIMAN worked closely with the NP for FP & PHC to implement training of LHWs and LHSs to address maternal and newborn health behaviors. The project adopted a short-term strategy (refresher midwifery training to the existing midwives), as well as a long-term strategy (18- month regular midwifery training on new curriculum) for community midwifery. PAIMAN began training TBAs on clean delivery practices, early recognition of danger signs, and their linkages with LHWs and CMWs.

PAIMAN established seven centers of excellence for training on childhood diseases at the tertiary care hospitals in all four provinces of Pakistan. These training activities were formerly conducted at various government health institutions, but most of the time no trained and skilled facilitators were available and the required teaching aids were not present. PAIMAN renovated the training hall and provided state of the art equipment, including a computer, printer, television, slide projector, furniture, and teaching aids (mannequins and educational CDs). PAIMAN also provided training of trainers to establish a team of skilled and experienced facilitators at each center, who have excellent command on the child hood diseases.

The health care providers (HCPs) available at the first care facility level include doctors (male and female), nurse midwives, lady health visitors (LHVs), and midwifes. Various consortium partners contributed to the capacity building of this cadre in the public and private sectors. External monitors received orientation on training modules and quality assurance tools. The quality of EMNC trainings was further assured by PAIMAN through field-based monitors. The project also coordinated efforts to organize refresher training of HCPs on essential surgical skills. PAIMAN conducted independent essential maternal and neonatal component trainings for private practitioners, and there was a notable increase in the number of private practitioners who joined the GoodLife fran-

PAIMAN Trained Health Care Providers and Managers

Training	Participants
Lady Health Workers (communication skills and CIMNCI)	20,099
Community Midwifes (regular 18 month and refresher training)	2,382
Health Facility Staff (EMNC, ESS, AMTSL, CCA, CEmONC training)	5,262
Private Providers (EMNC & CEmONC)	569
Health Managers (financial, logistic, supervisory, DAOP etc trainings)	1,014
Management Information System (HMIS, DHIS, evidence based decision making)	5,953
Other (TBAs orientation, drivers, etc.)	2,592
Total	**37,871**

Putting an End to Harmful Practices

"I will stop practicing all harmful practices while conducting a delivery from this moment onwards and will only observe and apply skills that have been taught to us in the training," *promises* Naseem a traditional birth attendant (TBA) in Taxila. She is 40-years old and been practicing this profession for the last 15 years. Naseem was very well known for her harmful practices because of which a number of women actually lost their lives in her hands. However, Naseem never paid any heed to what others said about her. PAIMAN held a step down training as part of its training of trainers (ToT) program of TBAs, in collaboration with FRIENDS Foundation a local NGO, in the Tehsil Headquarters Hospital (THQ) of Taxila, from February 19-28, 2007. A team from the collaborati ng NGO went to Naseem's house to invite her at the training, however, because of her bus y schedule, they had to wait for 2 hours prior to their meeting with her. Finally after a long meeting they succeeded in convincing Naseem to attend the TBAs training at THQ Hospital. The training was conducted by a team of trainers, trained by the Population Council a PAIMAN consortium partner.

chise network after successful completion of trainings. Pediatricians, obstetricians and anesthetists from DHQ, THQ, civil hospitals in the public sect or, and maternity homes and private hospitals in the private sector were trained in EmONC by the Pakistan Institute for Medical Sciences.

PAIMAN provided technical assistance to review, analyze, and conduct institutional assessment of National Trust for Population Welfare (NATPOW), and also contributed to the design of the NATPOW Program Strategy, facilitating its restructuring to making it a technically viable and financially sustainable institution. PAIMAN reviewed and facilitated the set-up of an NGO mobilization mechanism, and provided technical support to develop an M&E mechanism for NATPOW to monitor and its sub-grantee NGOs. Finally PAIMAN prov ided technical support in capacity building of NATPOW Staff.

Policy and Institutional Aspects

PAIMAN promoted the institutionalization of trai ning activities through close collaboration with the National MNCH Program. The training centers have been strengthened to implement the ambitious training strategy of the National MNCH Program. PAIMAN assisted the Midwifery Association of Pakistan (MAP) to develop a training strategy, review the curriculum, and develop training materials for TBAs.

Impact of Interventions

Results of the PAIMAN assisted training progra ms show the following impact on knowledge and skills levels:

- EMNC trainings proved to be a success among all cadres of health care providers in terms of trainee retention of knowledge and skills. All trainees on average retained 90% of the learned knowledge and were able to retain 81% of the maternal and 82% of the newborn skills after 6 -12 months of training. These results indicate the compe-

Shahana Bibi: The Importance of Training

Shabana Bibi works at a government basic health unit in District Buner. In May 2006, she attended PAIMAN's six-day Essential Maternal and Newborn Care (EMNC) training at the district headquarter hospital in Buner. Shabana is among lady health visitors trained by PAIMAN and now committed to delivering quality services as skilled birth attendants in their communities. PAIMAN's EMNC workshop has changed Sh abana's midwifery concepts and practices. Before the course, when Shabana was confront ed with a newborn with breathing problems, she would wrap the baby in a cloth and tell the parents to rush the child to a doctor at the rural health center. But now that she's learned the basic resuscitation skills (cleaning of respiratory pathways and mouth-to-mouth breathing), she is able to provide immediate resuscitation and keeps these babies from dying. Shabana marvels at the difference. ***"Before attending the PAIMAN training I never knew that I could save lives simply with the knowledge and practice of the four maternal and three newborn basic care skills. I have used these skills in thirteen deliveries since I've learned them, and I've saved babies from asphyxia and women from the threat of post partum hemorrhage."***

tency based nature and quality of training tools and methodology used during EMNC training.

- LHVs had the highest percentage of retention of knowledge and skills followed by WMOs and nurses, indicating that female he alth care providers have better tendency for retention and application of learned knowledge and skills as compared to their male counterparts which is due to their frequent involvement in MNCH activities.

- Doctors and paramedics acquired the same performance assessment scores, thus if trained properly, paramedics possess almost equal capability to retain and apply the learned knowledge and skills in maternal and newborn care.

- C-IMNCI training has contributed significantly not only in enhancing knowledge and skills of LHWs, but also helping in promoting referral trends. If all LHWs are trained in C-IMNCI, they would be able to address ma jor child illnesses e.g. pneumonia and diarrhea at onset and refer the complicated cases to first care level facilities well in time, helping in averting preventable child mortalities

Strategic Objective 5: Improve Manageme nt and Integration of Services at All Levels

The purpose of this strategic objective was to assess and address district health system weaknesses and improve support systems. The primary focus ar eas of health system strengthening were the district health management system, the health man agement information system, public-private partnerships, and monitoring and evaluation. In deve loping a strategy for improving management and integration of services at the different levels, PAIMAN attempted to take advantage of the opportunities presented by the devolution at the district level. The Local Government Ordinance of 2001 delegated health services planning and management responsibilities from the provincial govern-

ments to the district level. Under the Devolution Plan, districts would become autonomous and district health departments would be responsible for planning and management of the health services. Yet capacity to plan and manage health serv ices at the district level was limited. PAIMAN therefore felt that health system strengthening was an important component of any new health project.

Targets and Outputs

One of the provisions of the Devolution Plan was to establish District Health Management Teams (DHMT) to provide district-level health sector leadership. The DHMT concept, however, had not been put into operation. PAIMAN developed a concept paper regarding DHMTs in which their proposed roles, functions and composition were reviewed and DHMTs were institutionalized though official notification in each of the 24 PAIMAN districts. Seven DHMTs were also given legislative cover through district assemblies. DHMTs pr ovided a useful forum for collective analysis and decision-making. The broad representation and multi-disciplinary composition of the DHMTs enhanced coordination, public-private partnerships, and promoted community representation through their elected representatives. To provide DHMTs and consortium implementation partners baseline information, district health profiles were prep ared for all PAIMAN dist ricts. These helped design interventions to address MNCH issues. A sc oring matrix was developed to monitor how effectively the DHMTs were functioning, and the find ings were shared with members for their self-assessment.

PAIMAN completed implementation of leadership trainings for district health managers of all PAIMAN districts. The project organized workshops fo r DHMTs in the preparation of District Annual Operational Plans (DAOP). *HealthPlan*® software was installed in all districts to assist health managers in preparing evidence based DAOP and develop basic skills fo r using HMIS information in decision making. Trainings on financial, logistic ma nagement, target setting, and supportive supervision were also organized.

District health staff tend not to use information collected through the existing HMIS because of poor-quality data, lack of capacity, and lack of or ientation to use evidence in decision-making. The PAIMAN project was committed to increasing HMIS data validity and use in decision making by building the analytical capacity of health managers and service providers. PAIMAN conducted refresher training courses on HMIS data collection tools and methods to improve the data quality in all target districts. These were supplemented by evidence-based decision making courses for district managers to foster a culture of information use and to improve the analytical skills of managers. In collaboration with the National Health Information and Resources Center (NHIRC). PAIMAN organized capacity building workshops for senior managers of the ten initial districts on using information for evidence based decision making.

Given the fact that the HMIS focused mainly on first-level health care facilities, which did not include hospitals, an improved district health info rmation system (DHIS) was piloted by NHIRC. sThe DHIS was a district-centered information system that integrated primary and secondary care information from various vertical programs as well as information on public health sector human resources, logistics, and finance. DHIS captured important data on MNCH from both the primary and secondary care health facilities. In collaboration with NHIRC, PAIMAN implemented DHIS in its 24 districts. PAIMAN conducted trai nings and provided data collection instruments and software sup-

port for the scaling up of DHIS. Continuous support was also provided for implementation of DHIS in all PAIMAN districts.

PAIMAN also introduced an innovative rapid assessment methodology for community-based and facility-based assessments utilizing the LQAS technique. This technique entails studying 19 randomly selected samples within a supervisory area to obtain a fairly accurate assessment of the situation. Training of district health managers also took place to carry out small-scale monitoring and evaluation studies using LQAS.

Support systems are the foundation for an effective district health management structure. Current systems were either deficient in design or operation. PAIMAN provided technical assistance to assess district health support systems including supervision, financial flow, and logistics systems, and conducted a review and assessment of the existing district supervisory system, including supervision of MNCH service provision. Weaknesses were identified, and measures to strengthen them, including implementation guidelines, were proposed to transform the cursory and fragmented inspection system into a supportive supervisory system. PAIMAN also assessed the post-devolution financial flow system affecting the district departments of health. The study documented the financial flow system and focused on factors impeding timely expenditure of allocated funds. Based on the findings, PAIMAN made recommendations for increasing the efficiency of financial flows that did not require changes to the existing devolution legislation. In addition, two experts from the JSI DELIVER project undertook a district logistical management assessment, and made recommendations for strengthening the district logistics management system, which was critical to the provision of MNCH services by government health facilities.

In Pakistan, health care services are provided by a mix of public and private sector facilities and providers, including not-for-profit organizations. These services are mostly delivered independently, but there is an increasing move toward partnership between the sectors. The public sector has an extensive infrastructure, but issues such as absenteeism and limited quality of care have resulted in underutilization of its health facilities. The private sector provides about 3/4 of the curative health services in Pakistan. This sector also has limitations, such as a lack of regulation and a restricted ability to meet all health care needs independently, particularly for preventive and promotional health programs. PAIMAN started discussions with the federal and provincial governments on the regulatory framework aimed at improving coordination between the public and private sector in the delivery of MNCH services. Data was collected to form the basis of the regulatory framework. PAIMAN signed agreements with 49 private health care providers from 12 districts to encourage them to report on key services and indicators. While these partners regularly reported on the agreed indicators as a result of an incentive performance package, the number of partners was too small to be meaningful.

Policy Aspects

PAIMAN's efforts to improve the functionality of DHMTs has important lessons for the GOP, should the government wish to revive and expand this forum at any stage. PAIMAN's innovation of handing over the chair of the DHMT to the District Coordination Officer or District Nazim and its inclusion of the Executive District Officer (Finance) and the EDO (Social Welfare) in the forum helped to make DHMTs more effective decision-making bodies. The improved performance in PAIMAN districts led to the adoption of DHMT models by the district councils.

PAIMAN advocated with the DHMTs for preparing district annual operation plans (DAOP). This led to systematic planning, budgeting and performance reviews at the district level. Ultimately, all PAIMAN districts have prepared DAOPs since 2007. It is expected that their utility will convince district health management staff to make DAOPs a regular feature for effective district level planning for the health sector.

All PAIMAN districts were assisted in compiling and preparing their monthly MIS reports. Districts were supported in data collection on MIS-selected indicators from three main sources: HMIS/DHIS, LHW-MIS, and EPI-MIS. Districts were also supported in presenting monthly/quarterly MIS data at DHMT meetings. The expansion and implementation of this system, which provides an opportunity for reporting on MNCH indicators in major parts of the country can be attributed to the efforts of PAIMAN.

The support provided to PAIMAN districts in conducting a District Supervisory Assessment System (DSAS) using LQAS was an innovative approach to enhancing system performance. The support included assessment of supervisory and logistics systems, technical assistance for sampling, data collection, entry, and analysis. The exercise provided district managers a quick, scientific assessment of their health facilities and helped take actions to improve performance. It is expected that such innovations will help to influence district managers to continue to use these systems beyond the project life and expand their use to other districts.

PAIMAN also assessed the post-devolution financial flow system affecting the district departments of health. The study documented the financial flow system and focused on factors impeding timely expenditure of allocated funds. Based on the findings, PAIMAN made recommendations for increasing the efficiency of financial flows that did not require changes to the existing devolution legislation. It is hoped that these innovations will be replicated in other parts of the country.

Impact of Interventions

To assess the impacts of health systems strengthening interventions on local decision-making processes, PAIMAN, through a subcontract with the International Harvard School of Public Health (HSPH), undertook a decision space analysis (DSA) study. Structured interviews of a variety of dis-

Better Decision Making by DHMTs

- "DHMT highlighted the issues related to maternal and child health; which were then incorporated in the DAOP." ***(EDO (H), Jhelum)***
- "DHMT has introduced a range of managerial and technical initiatives in the district, like reorganization of health programmes, up grading of health facilities, and implementation of health related activities in collaboration with other departments." ***(EDO (H), Sukkur)***
- "DAOP generated demand for budget allocation in line with the needs of the district." ***(EDO (H), DG Khan)***
- "DAOP has been used as an advocacy tool, the example of which is increase in the budget allocated for medicines from Rs.10,000,000 to Rs.13,000,000." ***(EDO (H), Lasbela)***

trict-level decision-makers in the health sector, in local government , and with citizen-elected officials (district *nazims*) were conducted at two points (2006 and 2009) to quantify and document the degree of, as well as changes in, decision space, institutional capacities, and local accountability of Pakistan's decentralized health sector service delivery. To better understand the role that PAIMAN interventions may have played in these three dimensions of decentralization, interviews were conducted not only in the 10 districts that received PAIMAN capacity-building initiatives but also in three control districts. The following findings emerged:

Decision Space: The degree of local decision space and has grown in Pakistan, suggesting that local officials are increasingly inclined and able to take advantage of their health sector authorities under decentralization.

Institutional Capacities: Strengthened institutional capacities in districts receiving PAIMAN health systems strengthening interventions indicate that officials in those districts are better-equipped to make choices that are likely to improve local health sector performance.

Local Accountability: Local accountability for health sector decisions has remained at similar levels in PAIMAN districts despite recent changes that have diminished certain authorities of district *nazims*.

Synergies between decision space, institutional capacities and accountability: There were strong positive relationships among decision space, institutional capacities and accountability. This finding suggests that PAIMAN interventions have positively supported the advancement of health sector decentralization.

Grants Management

Major geographical areas within the PAIMAN districts were not covered by LHWs. Therefore, PAIMAN established a grants management program for local NGOs/CBOs to support the project's goals and objectives in these rural areas. Local NGOs were mobilized to support local communities to improve maternal, newborn and child health through innovative solutions and to build strong public-private partnerships at all levels. The PAIMAN team further built the capacity of these local NGOs to develop community level infrastructure and to implement community based interventions promoting the use of maternal health, newborn care, child and reproductive health services.

The grants management strategy was based upon the five strategic objectives of PAIMAN. The approach for strategy implementation included:

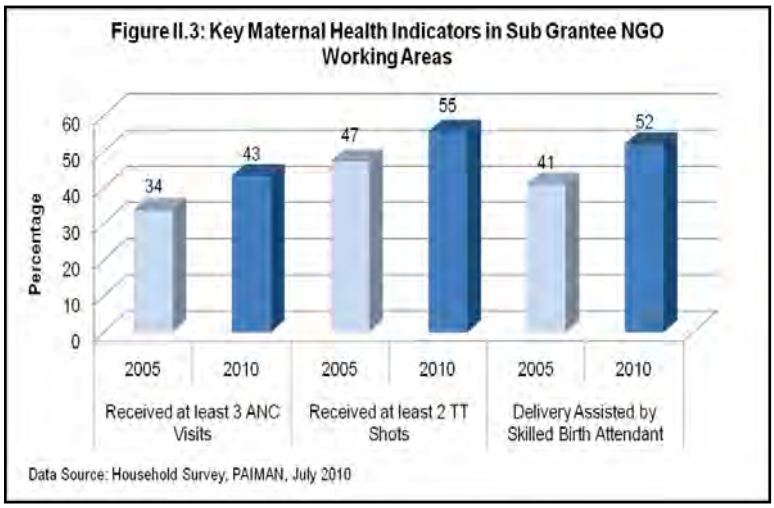
- To mobilize communities and increase awareness to obtain better and skilled obstetric care services and use of health care facilities from maternal, newborn and child health.
- To establish and build public-private partnerships to achieve community access to better maternal newborn and child health care services.
- To increase and strengthen the capacity of local indigenous civil society organizations (NGOs-CBOs) to constructively utilize sub grants for social development and to manage larger programs.
- To promote linkages with other community based social services.

Scope of Work

The programmatic areas and messages disseminated by NGOs were often similar to activities implemented by LHWs and included:

- Communication, advocacy, and mobilization (CAM) activities such as street theaters/ *putlee tamashas* and celebration of important days and events.
- Improving access activities such as free medical camps, arrangement of emergency transport. orientation of TBAs on clean delivery practices. Follow-up of trained TBAs on clean delivery practices, refresher trai ning for TBAs, TT vaccination of pregnant mothers. and identification of defaulter cases in EPI and follow-up.
- Innovative interventions such as the establishment of birthing centers and the establishment of revolving funds at community level to cater for the MNCH emergencies.

Results



The PAIMAN sponsored NGOs/ CBOs implemented their grants in LHW uncovered areas of the PAIMAN districts which constituted between 30% and 50% of the surface area. During the process of implementation, the sub-grantees reached 2,103,284 community members to create awareness of positive maternal, newborn and child health behaviors. The baseline and endline surveys show a remarkable improvement in key maternal indicators in areas where local NGOs worked (See Figure II.3). The target population was informed and moti vated on the importance of TT vaccination of the pregnant mother, and utilization of ANC, PNC, and TT vaccination services at the health facilities increased substantially. One ex clusive intervention was the establishment of birthing centers at rural health facilities such as BHUs where the MNCH services were not available. PAIMAN supported selected NGOs to ensure 24/7 provision of MNCH services at the center. The birthing centers successfully performed during the project period and are now handed over to Department of Health, PPHI, and to the community. The PAIM AN endline household survey shows substantial improvement of the coverage for MNCH services in non-LHW areas where these local NGOs were working.

Operations Research

PAIMAN conducted operations research studies to address issues of maternal, neonatal, and child health. The following paragraphs provide summaries on the various topics along with the results. In the area of maternal health, the follo wing three major studies were undertaken:

- *Assessing the Potential Acceptability of CMWs in Rural Settings*;
- *Assessing the Feasibility of Home Administration of Misoprostol in the Prevention of Postpartum Hemorrhage in Rural Pakistan*;
- *Assessing the Effect of Orientation on Clean Delivery Practice on Improvements in the Knowledge and Skills of Traditional Birth Attendants*.

Assessing the Potential Acceptability of CMWs in Rural Settings was a qualitative study using focus group discussions. Because CMWs were being trained and had not started practicing when data collection took place, a standard CMW description was shared with focus group discussions. The 365 participants were fairly evenly divided into six groups, including literate and illiterate married women with children under five, husbands, mothers-in-law, TBAs, and lady health visitors (LHVs).

Results were encouraging. Consensus was that the rural communities needed a readily available, trained healthcare professional and most agreed CMWs would be accepted in their communities. There were concerns, however, about competition from LHVs and TBAs. Many LHVs thought their clientele would be adversely affected by CMWs. Several LHVs and a few TBAs highlighted challenges CMWs might face (establishing a good working relationship, meeting community expectations, etc.). TBAs and LHVs expressed conditional willingness to work with CMWs but proposed different arrangements.

Assessing the Feasibility of Home Administration of Misoprostol in the Prevention of Postpartum Hemorrhage in Rural Pakistan: This study was conducted in the districts of Dadu and Khanewal with intervention and comparison areas, and was based on the premise that an intervention has the potential to significantly reduce preventable maternal deaths and provide a powerful model for more effective safe motherhood interventions in rural areas. The study was conducted with approval from the Ministry of Health and the National Maternal, Neonatal and Child Health Program. 872 pregnant women were selected in the intervention area and 826 were selected in the comparison area.

Results showed 88% of the women took misoprostol and that side effects, experienced by 41%, were transient and required no specific management. Of the women who took misoprostol at home, 91% said they would take the drug again and almost all of them were willing to recommend the drug to others. This study provides a useful addition to the literature on the feasibility of home-based administration of misoprostol, furthering the case for inclusion in the protocol for active management of the third stage of labor at the community level. The study shows that a birth attendant or mother can administer misoprostol tablets in home deliveries with proper advice. By introducing a simple, low-cost, easy-to-use technology and involving TBAs, use of misoprostol in home deliveries can help prevent postpartum hemorrhage and contribute greatly to saving women's lives from potential delivery complications in Pakistan where over half of deliveries take place at home.

Assessing the Effect of Orientation on Clean Delivery Practice on Improvements in the Knowledge and Skills of Traditional Birth Attendants: This study followed up a study conducted under the Safe Motherhood Applied Research and Training Project. The initial study had no comparison group. The PAIMAN study in PAIMAN districts was a cluster-randomized study comparing 277 oriented and 250 not-oriented TBAs with comparable samples of clients in PAIMAN districts after TBAs received orientation on clean delivery practices. The purpose was to determine if TBAs retained the knowledge they had received during orientation 19 months earlier and whether they were using that knowledge.

Results indicate that TBAs who received orientation have better knowledge, skills, usual practices, and client responses than those who did not. Oriented TBAs were more aware of danger signs during pregnancy, delivery, and postpartum period and for neonates. However, while the oriented TBAs' practices were better than others in important ways, they were still inadequate in some areas. Potential areas for improvement include use of clean delivery kits, discontinuing uterotonics use during second stage of labor, and reducing pelvic examinations, especially those done without gloves.

In the areas of neonatal and child health, several operations research studies were undertaken to improve newborn and child outcomes in Pakistan. The studies were conceived to work with existing public sector programs, notably the National Program for Family Planning and Primary Care (LHW program), health departments, and private sector care providers (TBAs, CMWs, family physicians). The research was developed on three key principles:

- Tackling the major killers of newborns and children and determinants thereof;
- Promotion of evidence-based interventions which could be delivered at scale; and
- Targeting the most vulnerable sections of the population.

Evaluation of the effectiveness of vitamin A supplementation as part of a neonatal postpartum care package on infant morbidity and mortality in Districts Sukkur and Jhelum (January 2007-March 2010): The study evaluated the impact of a community-based neonatal vitamin A supplementation program on morbidity and mortality in newborns and young infants when administered at community level. Interim data indicate LHWs have been able to reach, within 48 hours of birth, over 75% of all mothers and newborn infants in their target populations. There were no adverse effects and acceptance was universal. This intervention can be delivered by LHWs and used to promote early postnatal visits.

Evaluation of effectiveness of vitamin D supplementation to pregnant women and their infants in District Jhelum (2009-June 2010): The study evaluated the impact of vitamin D supplementation to pregnant women in reducing pregnancy complications and evaluated the pattern of growth, morbidities, and vitamin D deficiency of the infant's first six months. After baseline screening, pregnant women were randomly divided into two groups. One group was given placebos and the other 4,000 IUs of vitamin D. Wellbeing and pregnancy complications were monitored. Infants were also followed for neonatal wellbeing, including birth weight. Baseline assessment data indicate prevalence rates of clear and intermediate deficiency of vitamin D exceeds 70% of the pregnant population. Analysis of endline data is still ongoing.

Improved recognition of and responses to prolonged labor and birth asphyxia in Districts Matiari and Jhelum (March 2009-February 2010): The study looked at the association of prolonged labor and birth asphyxia. Additional aims were to identify the path of survival by problem recognition to care seeking and avoidable risk factors. Also reported were cultural norms pertaining to prolonged labor and birth asphyxia and plan the process of problem recognition and response. Data analysis is still ongoing. Findings will be applied to community-based strategies on improved birth preparedness and complication readiness, including prompt referral.

Topical application of chlorhexidine to the umbilical cord for prevention of omphalitis and neonatal mortality in District Dadu (January 2008-March 2010): The study estimated the independent effect of 4% chlor-

hexidine solution application to cord stump and hand washing with soap by mothers of newborns for two weeks after birth in reducing omphalitis in neonates. Interventions were delivered through TBAs, who after provision of clean delivery kits and training, applied chlorhexidine on the umbilical cord once after delivery and thereafter taught the intervention to mother/family members. Additional counselling to promote hand washing with soap before touching the newborn was provided. Results indicate a 50% reduction in rates of omphalitis and a consequent 40% reduction in neonatal mortality. These findings strongly suggest to add 4% chlohexidine solution to the Clean Delivery Kits, and to add it to the interventions in home settings using any type of health care provider.

Community-based management of acute moderate and severe acute malnutrition, Districts Dadu and Khairpur (January 2009-September 2010): The study assessed the acceptability, feasibility, and effectiveness of Nutributter and fortified supplementary food in treatment of moderate and severe malnutrition in children aged 6 months to three years. It also compared the impact of only providing nutrition education to caretakers. Findings demonstrate high rates of acceptance and success of nutrition rehabilitation through CMWs and low resulting mortality rates.

Community case management of severe pneumonia with oral amoxicillin in children 2-59 months of age, Districts Hala and Matiari (July 2007-May 2010): This study determined the impact of asking LHWs to diagnose and manage severe pneumonia with oral amoxicillin. LHWs were able to implement the strategy for case management of severe pneumonia as successfully as a host of care providers using second-and third-line antibiotics and injectables. These findings should lead to a change in policy for recognition and management of pneumonia in rural Pakistan.

A community-based introduction and evaluation of the impact of social marketing of a diarrhea management pack on childhood diarrhea, Districts Khairpur and Jhelum (February 2009-September 2010): This study evaluated effectiveness and acceptability of a diarrhea management package (comprising low osmolality ORS, zinc, water purification tablets, and pictorial instruction sheet) in reduction of diarrhea and its related morbidity and mortality in children less than 5 years of age. The diarrhea management pack, distributed to households with diarrhea by CMWs, was also sold through pharmacies and promoted to local family physicians. Data analysis is still ongoing.

Impact evaluation of postpartum care package and early postpartum visit on newborn survival, District Sukkur (August 2007-April 2010): The study developed and implemented innovative intervention packages in various combinations for community-level health care workers (TBAs, LHWs, midwives) to reduce postpartum maternal and early neonatal mortality and morbidity and to improve early postpartum and newborn care through timely recognition and referral of complications by early LHW postpartum visits. The study revealed barriers to effective postnatal LHW visitations and need for proper monitoring and evaluation.

Comparison of short-duration (7 days) IMNCI training with standard (11 days) IMNCI training of private and public sector health care providers, Districts Rawalpindi and Khairpur/Sukkur (August 2009-September 2010): This study evaluated the effectiveness of 7-day verse 11-day IMNCI training by evaluating both groups six months after training. Preliminary data suggest both approaches led to comparable retention and gains among physicians.

Signed in October 2004, the five-year Cooperative Agreement 391-A-00-05-01037-00 with funding of $49,943,858 for ten districts was expanded with an additional $4 million in 2007 to include two FATA Agencies and two Frontier Regions. In March 2008, $2.3 million for Swat was added. In September 2008, 14 additional districts in underserved areas were added and the technical areas of birth spacing, child health, and private-public collaboration added. The end date was extended by one year, to September 30, 2010, and the budget increased by $36,556,143. In August 2010, Modification 15 extended the completion date to December 31, 2010. Total life-of-Project funding was $92,900,064.

A. Project Organization

To provide overall project management, JSI assembled a team of professionals headed by a Chief of Party (COP) in Islamabad. Supporting the COP, the Senior Management Team was comprised of Deputy Chief of Party (DCOP), Director Program Grants, and Directors Finance and Administration. The team met regularly to discuss Project activities and guide resource allocation. Initially, the JSI Pakistan-based team consisted of 17 program, finance, and administrative staff. As the Project expanded, staffing gradually grew to 106 local staff plus two expatriates. See Project Organization chart on page 56.

Initially JSI established one office in Islamabad and four provincial offices. A FATA office in Peshawar and 14 district offices were opened after October 2008 Project expansion. Each provincial office was headed by a Field Operations Manager (FOM) assisted by an Administrative and Financial Assistant, a vehicle, and driver. The FOM served as the PAIMAN provincial focal point, coordinating PAIMAN provincial program activities, facilitating and supporting partner organizations' Project interventions, facilitating training and community awareness events, and managing funds allocated for provincial-level activities. The Administrative and Financial Assistant handled office disbursements, payment of stipends to CMW students and per diem and travel allowance payments to training participants, and a range of administrative support functions.

With the 2008 Project expansion, a second Islamabad office opened to house the JHU/CCP and the JSI Administrative teams. District offices also opened at this time and were headed by a District Program Coordinator (DPC), with a District Financial Assistant and rented vehicle with JSI-hired driver. DPCs performed functions similar to FOMs, except only in their assigned district. In addition to serving as the Project focal point, DPCs assisted with Project monitoring, data gathering, preparing monitoring reports, and identifying problem areas. They reported to the FOM under which their district fell.

Under the direction of the Director Program and Grants quarterly meetings were held, in which all FOMs and DPCs reviewed Project progress, planned upcoming major events, and discussed difficulties. Other senior Project staff attended as required. Under Director Program and Grants guidance, Islamabad senior technical staff periodically traveled to provincial and district offices to monitor progress and support Project field-based staff.

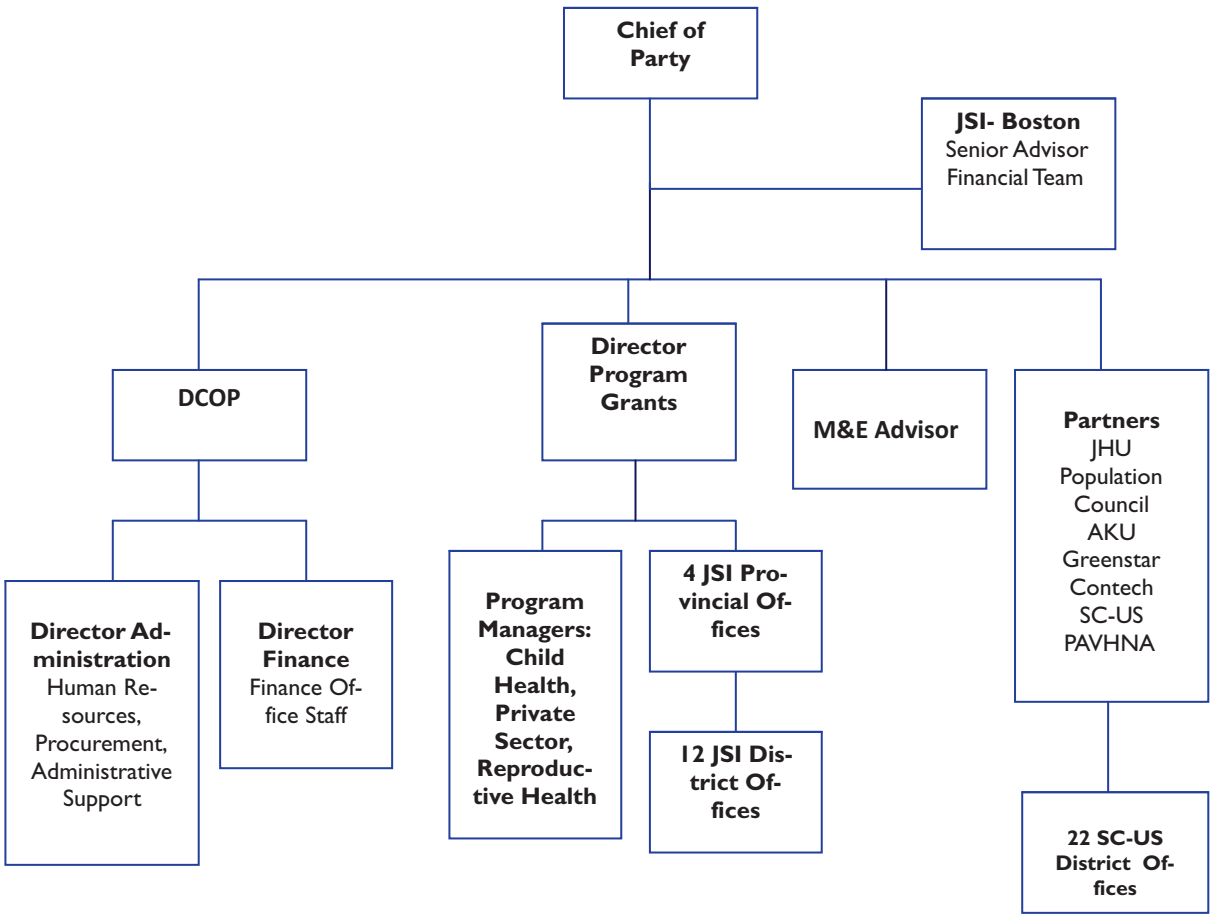
Save The Children US's 22 district offices, each headed by a training coordinator, supported Save's Project intervention areas of community mobilization and capacity building of lady health workers. JHU/CCP staff worked out of the JSI Islamabad offices while other partners staff worked from each partner's established Pakistan office.

In regular National Coordination Meetings, PAIMAN partners reviewed Project progress. Meetings were chaired by the COP and included each partner's key program staff. Five (Capacity Building, Operations Research, Health Systems Strengthening, Access and Quality, and Communication) thematic groups were formed. Each group served to coordinate relevant activities of all Project partners and ensure no overlap of effort. Groups initially met often but as the Project progressed and roles and responsibly were defined meetings were held annual or semi-annually.

During the life of the Project five Technical Advisory Group (TAG) meetings were held. The objectives were to initiate dialogue among experts on selected maternal, newborn, and child health, health communications, advocacy and social mobilization health systems strengthening, capacity building, research, and private sector initiatives. At TAG meetings present and future PAIMAN Strategic Framework and Work Plans were reviewed, main strategic Project interventions discussed, and special topics with appropriateness for Project objectives examined.

JSI-PAIMAN field staff were supported by JSI home office backstopping team led by the Project Senior Technical Advisor, who provided the COP guidance and support on overall implementation.

Project Organization



Financial and general Project support was provided by the JSI-Boston finance staff, with a Project Coordinator supplying day-to-day backup, as required.

B. Procurement

To support the Project's SO 3, under the directio n of the Director Administration, JSI procured a large variety of medical and laboratory equipment, hospital and office furniture, training equipment, exam room furnishing and supplies, office equipment, and ambulances for selected health facilities and training centers. A *Procurement Manual* developed for JSI PAIMAN team use later served as the model for a JSI-wide *Procurement Manual*. All local and off-shore procurements were completed in compliance with USAID acquisition rules and regulations.

DHQ Hospital, Dadu District maternity ward, prior to PAIMAN renovations.

DHQ Hospital, Dadu District maternity ward, after PAIMAN renovations

Equipment and supplies were delivered from a central warehouse to designated health facilities and training centers in the PAIMAN-selected districts:

- Furniture and supplies to establish 158 oral rehydration corners;
- Equipment and furniture for 86 well-baby clinics;
- Equipment and furniture for 1,600 CMW homes;
- 76 purpose-built ambulances for selected health facilities;
- 50 Suzuki vans converted to ambulances for selected health facilities to support the RESAI initiative.

JSI-PAIMAN upgraded 103 health facilities in 24 districts and 2 FATA age ncies to enable 24/7 MNCH operation. Renovations, as required, includ ed repairs and rehabilitation of buildings and provision of medical equipment, office and waitin g room furnishings. In addition, 29 district and provincial health development training center s were upgraded and furnished. A total of $16,980,000 was expended to upgrade and provide ambulances to health and training facilities.

JSI-PAIMAN also renovated and provided essentia l items (cots, desks, crockery, bedding, training aids) for 57 CMW training schools primarily used to train CMW students. A student dormitory was constructed at the Public Health Nursing School, Mardan to serve students from District Swat. In Multan, a floor was added to the maternity hospital to provide extra beds for patients.

C. Financial Management

Project financial management was directed by the Director Finance and supported by a team of financial experts in Islamabad. Each field office had a financial/administrative assistant. The provincial and district administration financial person maintained a Project bank account, paid students

supported by the Project, disbursed per diem and travel allowances at Project-supported trainings, maintained a petty cash account, and monthly prepared and forwarded to JSI-Islamabad financial records. These field-generated financial accounts were closely reviewed in Islamabad, and discrepancies/omissions quickly resolved with the respective field office before consolidation and submission to JSI/Boston.

Using the Project *Financial Management Manual* as a base, a *Provincial Financial Management and Reporting Manual* was prepared for use by provincial offices. A similar manual was prepared for district offices.

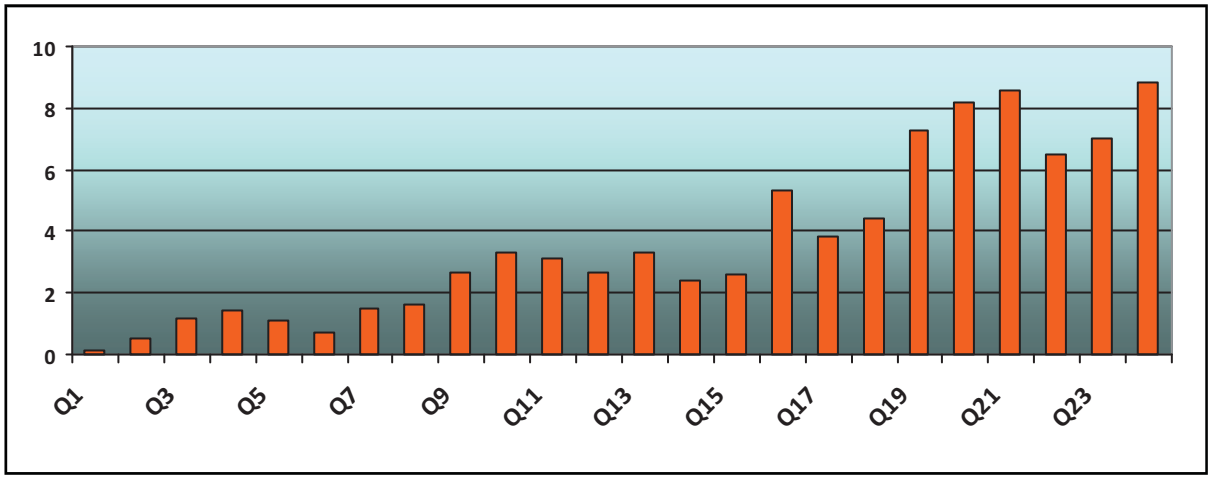
Financial checks and controls were established in the Islamabad office. A Purchase Committee under the DCOP reviewed all procurements (quote solicitations, bid reviews, award recommendations) over US$10,000 to ensure compliance with JSI and USAID rules and regulations. Prior to processing a payment approval was first obtained from the program division, then Director Administration, and, finally, DCOP or COP if over US $10,000. These procedures insured transparent purchases and payment.

Using a JSI template adapted to reflect Pakistan labor laws, a *Personnel Manual* was prepared at Project inception.

The large Project budget increase with September 2008 expansion resulted in significantly-increased quarterly expenditures (see below). The Project was obligated 100% of its awarded funds, of which 99% was expended.

The Project's $4,096,864 cost share goal was met in its entirety by JSI, PAIMAN partners, lady health worker time, provincial office share, and sub-grantee programming.

Quarterly Disbursements
Cooperative Agreement 391-A-00-05-01037-00
(October 8, 2004-December 31, 2010)
(US$ millions)



CHAPTER IV: IMPACT, SUSTAINABILITY, LESSONS AND EXIT STRATEGY

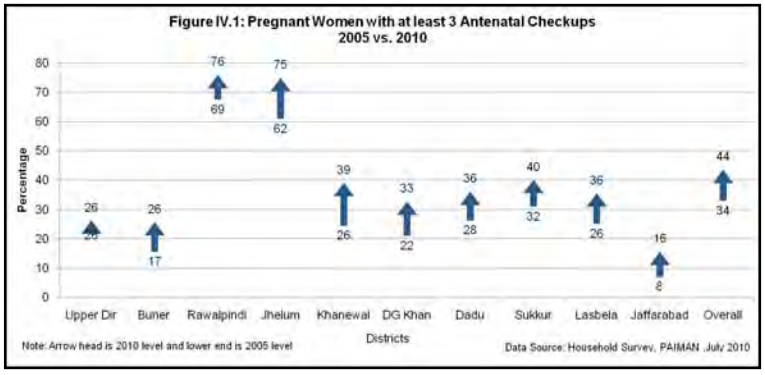
For the first four years of implementation, PAIMAN targeted a population of 13 million. With the expansion in its geographic and programmatic scope, the target population increased to 34 million in the last two years of the project. PAIMAN's outreach, however, has gone far beyond the target districts because of the project's capacity to leverage some of its investments through existing government programs, public-private partnerships, and community initiatives.

The project outcomes were impacted by some critical challenges which PAIMAN had to navigate during its history. The worsening of the security situation in Swat, Buner, Upper Dir and FATA and the temporary displacement of the people from the affected districts due to security reasons resulted in a change in project strategy with a greater focus on local NGOs undertaking implementation. The devastating floods in Pakistan at the end of August 2010 also placed a heavy demand on PAIMAN to respond to the health challenges which emerged as a result of the displacement of a large number of people across the country from their homes. PAIMAN responded with providing support to mobile units, repairing health facilities, and sending essential supplies to the affected areas to deal with emergency obstetric, neonatal and child care.

PAIMAN has either met or exceeded most of the output targets which were specified in its agreement with USAID. Certain targets were not achieved as specified, primarily due to the deteriorating security situation in the country, the change in the system of governance, or as a result of a revised agreement or improved understanding on the basis of which the initial targets were subsequently revised. Annex 1 provides the cumulative achievement of targets of PAIMAN by year.

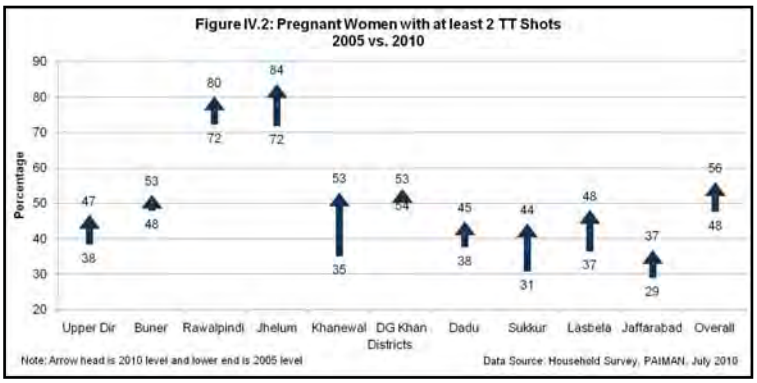
A. Services Outreach and Health Outcomes

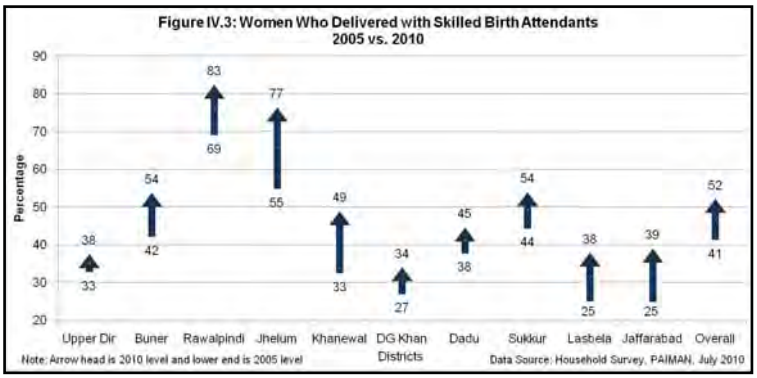
The impact of PAIMAN on classic health outcome indicators such as the maternal mortality rate which is difficult and expensive to measure and the effect cannot be expected to emerge quickly. Therefore, PAIMAN identified a set of intermediate indicators at the onset of the project. To measure these, PAIMAN designed a baseline household survey that was carried out in the first year of the project. Results of this baseline survey were compared with a household endline survey undertaken in June and July 2010 to assess the impact of PAIMAN's interventions. Results from this survey show substantial improvement in most indicators.

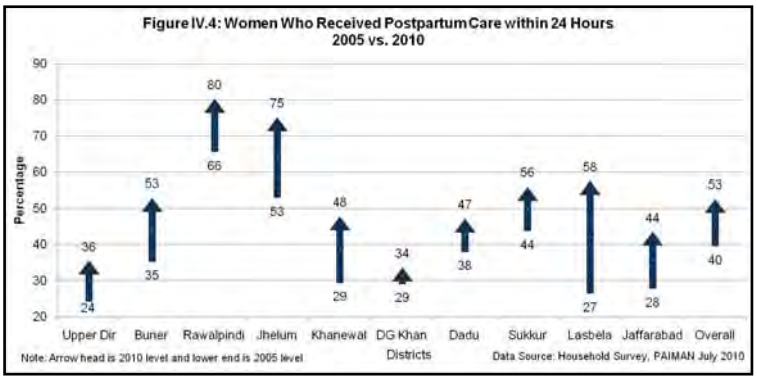


There has been an increase in the number of pregnant women with at least 3 ANC visits by almost 10% in the initial 10 PAIMAN districts for which results are available. This increase is statistically significant ($p < 0.001$), as shown in Figure IV.1. Although the baseline was quite different between districts, the increase in coverage is fairly similar in all the districts except in Upper Dir, which had a poor security situation for a substantial time during the project.

The endline survey shows very diverse results for the indicator regarding TT shots (Figure IV.2). Some districts, such as Jhelum, Khanewal, Dadu , Sukkur and Lasbela show a very clear difference between the baseline and endline figures while there is less difference in Buner, and a lowering of







the use of TT shots in DG Khan. The average differential between the baseline and endline shows an increase of 8% which is statistically significant ($p < 0.001$).

The results of the household survey show that there was a marked difference in all districts with reference to skilled birth attendance (See Figure IV.3). The most marked was in Jhelum, Khanewal, Lasbela and Jafferabad. The average difference between the baseline and the endline survey results for this indicator is 11% from 41% to 52% and is statistically significant ($p < 0.001$). It is clear that the message regarding the importance of a skilled birth attendant at delivery is being conveyed, understood, and is influencing health seeking behavior.

A comparison of the baseline and endline figures regarding the coverage for post-natal care visits within 24 hours after delivery shows a major difference in the results (See Figure IV.4). In Lasbela, this indicator more than doubled from 27% to 58%, while in Dera Ghazi Khan there is a difference, but it is marginal. The average difference between the baseline and endline surveys shows a difference of 13% and is statistically significant ($p < 0.001$).

The baseline and endline population surveys also measured perinatal and neonatal mortality in the ten original districts. The results in Figure IV.5 summarize the situation in the ten original PAIMAN districts and are not representative for individual districts. While both perinatal (from 52/1,000 to 46/1,000) as well as neonatal mortality (from 31/1,000 to 23/1,000) decreased significantly, clearly showing the impact of PAIMAN interventions on health outcomes.

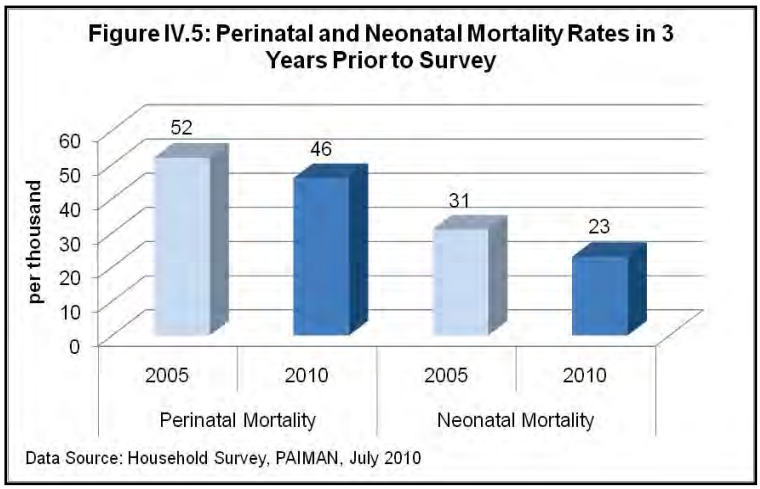
Finally, the population surveys meas ured the use of family planning in the PAIMAN district households. Current use of contraception has increased by nearly 5 percentage points, nearly 1 percentage point per year, from 25% to 30%. The current use of modern methods has increased from 20% to 23%.

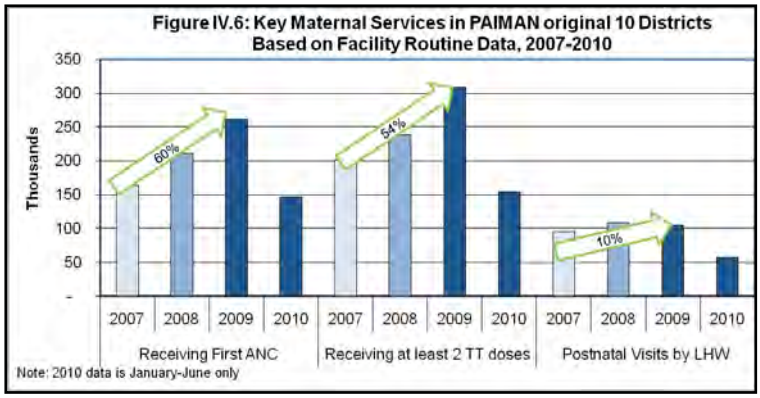
PAIMAN also used facility based data sources to measure service utilization. As for key maternal services, TT2 immunization and prenatal care indicators have shown steady improvement since 2007. Compared with 2007, TT2 immunization increased by 54%, pregnant women attending prenatal care by 60%, and postnatal visits by LHWs by 10% in the original districts (See Figure IV.6).

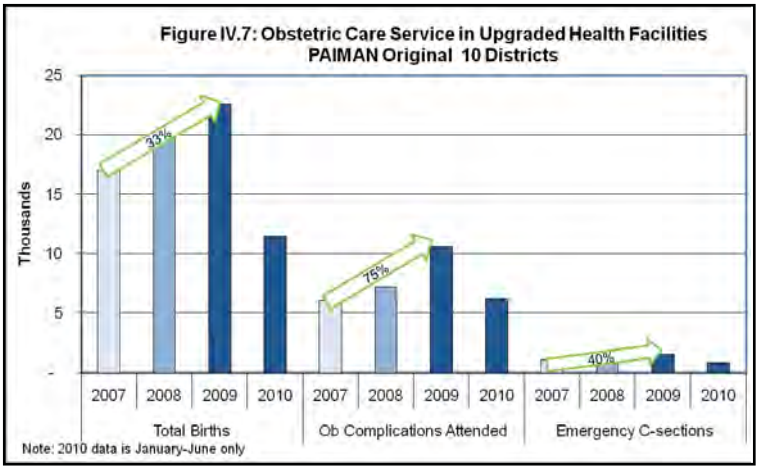
As for obstetrical services, total births in the upgraded health facilities of the original 10 districts increased by 33%, obstetrical complications treated by 75%, and C-sections by 40% (see Figure IV.7).

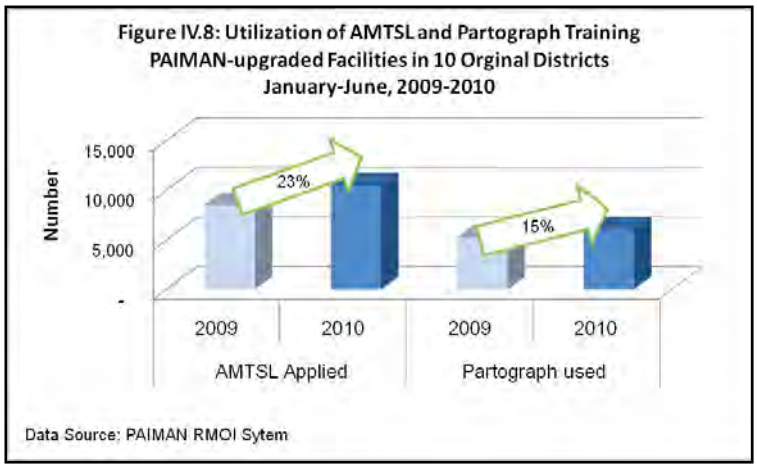
PAIMAN provided training in the active management of the third stage of labor (AMSTL) and use of the partograph to health care providers involved in deliveries. Data from the upgraded health facilities showed that this had an immediate impact on the utilization of this training and provision of services to clients. Between 2009-2010, there was a 23% increase in AMSTL and 15% increase in partograph use in the facilities (See Figure IV.8).

As for the impact of the health system strengthening interventions, PAIMAN had proposed the percentage increase in district health budgets in its strategic plan. The overall increase in budget from 2005 to 2009 in the ten original PAIMAN districts was 60% while the target for percentage increase was 50%. Hence in overall analysis, the set targets have been achiev ed. A district-wise breakdown showed varying values (See t able next apge). Out of 10 districts, an increase of 50% or more was observed in 8 districts. Upper Dir and Khanewal showed extremely high percentages of budget increase (i.e. 876% and 781% respectively). In distri cts DG Khan and Rawalpindi, the increase was more than 100%.









Both Sindh districts remained below the 50% target increase. Dadu showed an increase of less than 1% and Sukkur showed a decrease of 11%. The decrease in Sukkur and only 1% increase in Dadu is associated with stagnant/decrease of provincial allocation of budget to these districts. Other obvious reasons include political clashes between districts heads and provincial governments due to conflict between the ruling political party and opposition.

District Health Budgets
10 Original PAIMAN Districts
(Pakistan Rupees)

District	2005	2009	% Increase
Rawalpindi	235,598,000	483,147,000	105
Jhelum	158,081,000	280,085,000	77
Khanewal	1,300,000	11,450,000	781
DG Khan	175,657,312	393,805,000	124
Dadu	330,302,700	332,414,600	1
Sukkur	199,007,336	178,119,310	(11)
Buner	49,636,171	90,266,424	82
Upper Dir	12,555,519	122,488,140	876
Lasbela	92,404,000	129,268,000	40
Jafferabad	45,069,499	56,511,189	25
Total	**1,299,611,537**	**2,077,554,663**	**60**

Source: DSA

B. Policy and Institutional Impact

PAIMAN has helped the GOP reshape and design its policy in a manner which is likely to have a lasting impact on MNCH and FP issues. The PAIMAN Chief of Party was a prominent member of the National MNCH policy committee, and PAIMAN helped to provide opportunities to key decision-makers to learn from international experiences and best practices and reflect and modify the existing policy framework in Pakistan. The project helped to prioritize the issue of maternal, newborn, and child health on the GOP agenda and attracted the attention of policymakers on the critical measures required to address challenges. It is for all these reasons that the project is considered one of the most outstanding donor projects in the health sector.

Some of the areas in which PAIMAN influenced government policy are outlined below:

- PAIMAN has helped the Government to refine its policy of developing a new cadre of community midwives (CMW) to help ensure the presence of skilled birth attendants in rural areas and remote and isolated communities.

- The National MNCH Program incorporated all key PAIMAN interventions and the PAIMAN Consortium helped to further refine the design by working closely with the National MNCH program at national and provincial levels and sharing the process and challenges PAIMAN faced during its implementation.

- The Karachi Declaration on *Scaling up MNCH-FP Best Practices in Pakistan*, a historic pledge of Ministries and Departments of Health and Population Welfare to unite in committing to scale up selected high-impact MNCH-FP practices, all promoted by PAIMAN in its target districts.

- The CAM strategy developed by PAIMAN has been adopted by the National MNCH Program and the National Program for FP & PHC. The strategy aims to bring together new constituents, partners, and champions from among policymakers, private-sector entities, civil society organizations and community leaders to create a social movement to improve maternal and newborn outcomes.

- The project helped to provide support to the NP for FP & PHC to establish a Research and Publication Cell for its BCC activities and provided it with technical assistance to strengthen its BCC strategy.

PAIMAN's efforts to re-energize some of the existing but dormant institutional arrangements such as the district health management teams at the district level, the health committees at the facility level, the support groups and the male health committees under the LHW at the community level can all be expected to help the government refine future policy.

PAIMAN's experience in scaling up DHIS in all its districts and in trying to ease some of the initial problems with both the software and hardware arrangements is likely to influence the further strengthening and development of DHIS. The project's experience in staff capacity building, data entry, storage, retrieval, analysis, and use can be instructive in helping to scale up this system to all districts.

PAIMAN helped in improving the implementation of interventions that were being carried out at scale, but were implemented poorly, lacked attention to maternal and newborn health, or failed to reach poor and marginalized populations: AMSTL, Newborn Resuscitation, and outreach through special health camps.

The project helped to replicate community and facility-based interventions or approaches that had proven successful on a small scale, but had yet to be adopted by other programs or partners: 24/7 functional health facilities, IMNCI, EMNC, and deployment of CMWs.

Through its advocacy activities, grants, and private sector program, PAIMAN brought new partners and champions from among policymakers, private-sector entities, civil society organizations and community leaders to create a social movement to improve maternal and newborn outcomes.

C. Are PAIMAN Investments Sustainable?

PAIMAN's project implementation strategy was designed with sustainability in mind. This is principal reason why PAIMAN did not create any new institutional structures or parallel systems but worked within the existing institutional arrangements available in the public health system. The project focused on building public health systems, and in particular focused on building the planning, management, supervision, and monitoring capacity at the district level. PAIMAN helped to enhance the strategic thinking capacity of key personnel of the health sector, particularly at the district level, and helped to build the knowledge base and expertise of health care professionals. The project worked closely with the various tiers of health workers at the village and community levels, such as the CMWs, LHWs, and TBAs. As a result, there is not likely to be any dismantling of a large number of staff positions at the end of the project period. PAIMAN improved physical infrastructure and created innovative and client friendly health facilities which can be scaled up by the government. The beneficial impact of these facilities on patient flows and health outcomes may be instructive in persuading the government to invest additional funding in improving physical infrastructure in existing facilities.

PAIMAN made maximum use of the structures that were created or established as part of the existing health sector program or as a result of the Local Government Ordinance 2001 and tried to revitalize some of the existing arrangements which had not been fully operationalized or tested such as the DHMTs, health committees at facility level, support groups, and male health committees at the community level, under the LHW Program. PAIMAN strengthened these arrangements to promote greater access to health services and help enhance responsiveness and accountability within the health system for MNCH services. The project also helped to install and develop DHIS and helped to demonstrate how effective use of the information generated could help in making the health services more effective and performance oriented.

PAIMAN worked with the private sector to help enhance the sector's scope of services for MNCH. It helped to enhance the capacity of private sector service providers by helping to enroll a higher number of providers under the Greenstar GoodLife franchise. There is little regulation of the private sector in Pakistan at the moment, and by introducing certain service standards prior to allowing the GoodLife operators to receive their certification, PAIMAN initiated a system of quasi-regulation for the private sector. Although the scope of this was small in terms of the number of private sector operators who fell under its purview, such systems are absolutely necessary for ensuring a certain minimum standard of quality and highlighting the importance of regulating quality of services.

PAIMAN made a special effort to initiate public-private partnerships, and this led to several sustainable arrangements that are expected to last beyond the project life and provide a model for others.

PAIMAN's focus on empowering NGOs and communi ty initiatives added another dimension of sustainability to its investments. The project helped to build the capacity of local NGOs and community based organizations in geographical areas where there were few other options available otherwise, and worked with local communities to ensure PDQ process through QITs at the district-level which proved very conducive to tackle issues such as staff absenteeism and quality of care. PAIMAN also worked with private sector transporters to facilitate linkages with communities for emergency services for pregnant women. District teams implemented PDQ at each facility hosting a RESAI ambulance to ensure proper utilization, main tenance, POL, and driver availability. QITs are responsible for ambulance utilization and maintenance and improving health facility service quality. This initiative while promising needs additional support from District Health Officials to ensure sustainability.

PAIMAN worked with the media to make them a clos e partner, investing in the long-term capacity of journalists. There are a large number of programs on television which address the issues of maternal health. While it is difficult to attribut e any connection between PAIMAN and the proliferation of such programs, PAIMAN has certainly co ntributed to enhancing awareness about these issues in the media and building the capacity of the electronic and print media to report on these issues.

While PAIMAN's strategic approach was very promis ing for sustainable results, the recent adoption of the 18th Amendment and the resulting unstable leadership requires close coordination with MOH and provincial health departments to ensure continuity of efforts.

D. What are the Key Lessons from PAIMAN Experience?

Over its six year history, PAIMAN has worked in a broad range of areas with a wide range of partners. There are many lessons learned from this ex perience. However, some of the most important lessons are the following:

Design Elements

Basing the project strategy and interventions on *evidence and empirical research* is critical for achieving project objectives. PAIMAN's use of evidence , baseline, formative, and operational research proved invaluable in helping to refine its strategy and investment decisions. It is PAIMAN's view that the public sector can benefit significantly by following a more evidence-based approach prior to committing resources to its health care interventions particularly with reference to MNCH services.

While it is important to have a strategy at the outset, it is *equally important to be flexible and innovative* in a multi-year national program to respond effectively to the needs of the target group. Furthermore, in a country as diverse as Pakistan, it is critical to tailor strategies to accommodate this diversity. PAIMAN interventions were modified in many key areas when it emerged that the original plans and targets may not be appropriate.

Targeted Interventions

The baseline household survey and formative research revealed that mothers and family members had limited knowledge and awareness of the importance of receiving timely post partum care. Therefore, it was important to *design special messages focused on the need to seek postpartum care* at household and community level for the health and wellbeing of mothers and the newborn.

Despite having the required health facilities and infrastructure for basic and comprehensive emergency obstetric and neonatal care, such services were generally not available due to lack of trained staff and equipment. It was critical to *ensure the presence of qualified staff* through payment of special incentives, performance rewards, etc. Upgrading of health facilities created a strong impetus for the use of health services and helped to (re-)build the credibility of the public sector health facilities.

Provision of a high profile and visible investments such as ambulances creates a strong impression of support in both the public sector and among the community and is highly appreciated. PAIMAN's provision of purpose-built ambulances to the health departments and the Ministry of Population Welfare were highly appreciated. However, sustainability could be an issue because of the uncertainty that the community will be able to continue to provide the operational funds and the government the maintenance funds.

Rewarding performance through a system of financial and non-monetary awards can encourage better performance and presents a real opportunity for the public health system to improve the quality and range of services especially in rural areas. Non-monetary incentives can include training, appreciation letters, and certificates. Financial awards can include a one-time special bonus, performance based cash prizes and increment in salary. For example, the Government of KPK by agreeing to double the salary of WMOs working in remote health facilities and through payment of incentives to a lady doctor in Dir was able to appreciably enhance services for women in dire need of MNCH services. The Government needs to institute more such incentive systems.

PAIMAN's experience has shown that *DHMTs can become an important mechanism to improve service delivery* through better planning, management at the district level and can also be instrumental in negotiating additional resources. For DHMTs to become effective requires the stable and prolonged presence of a team of competent and committed individuals. This generally is not possible in the public sector because of competing responsibilities and high turnover of staff.

PAIMAN's formative research highlighted *the importance of male involvement in MNCH* as key decision makers at the household level. It is therefore important to devise innovative mechanisms to target men with appropriate messages through community leaders, religious leaders, the electronic media, print media, community theatre, puppet shows and interpersonal contacts.

Partnerships

Building partnerships with government at federal, provincial, and local levels, as well as with other donors helps to leverage project investments for maximum impact that extends beyond the project area and project life.

Public-private partnerships present an effective model of ensuring improved access, quality and scope of services by enabling the private sector to provide operational costs, staff salaries and additional incentives in Government health facilities. However, high level political and institutional support is critical for these partnerships to be realized.

Participation of local communities can improve the effectiveness of the health services by incorporating feedback from the community into quality improvement. PAIMAN's experience in working with local communities in the PDQ process through QITs at the district-level proved effective in addressing issues such as staff absenteeism and quality of care. The community can also provide support in raising funds for specified purposes. Finally, participation of the community in monitoring the health services enhances accountability of public service providers when there are clear mechanisms for reporting and taking action.

Capacity Building and Training

The CMW training program should be adapted to the local context in order to ensure sufficient exposure to working within the community during the training period. Selection criteria should be revised especially for age and adherence to the requirement of residing in the respective rural community. Uniformity of assessment must be ensured through the development of an assessment board. National standards are required for clinical midwifery practice, but they should be tailored to the specific rural context. The placement of CMWs must be linked with other MNCH program activities, such as placement of WMOs, to facilitate referrals and promote health education to create awareness. Opportunities for practical training should be followed meticulously, and supportive supervision is a critical component for maintaining high quality of the services provided. National standards are required to monitor the practice of CMWs: These standards must go beyond the administrative tasks of reviewing records and ensuring a supportive and capacity-building environment.

Monitoring and Evaluation

The presentation of a comprehensive picture of district-level indicators at the outset serves as an excellent means of generating considerable interest in maternal and neonatal health status and issues. The participation of representatives from different districts creates healthy competition among the district planners and managers and ultimately contributes to improvement of the health services provided.

Collecting data from the private sector is difficult, as private providers are disinclined to report on their activities because of workload and lack of incentives, and many are not well-trained in data collection. Innovative ways are required to encourage reliable information collection. Greenstar introduced a novel system, the Enterprise Mobile Messaging System, for trained providers in PAIMAN districts. Through this system, PAIMAN was able to collect data from 50% of private providers on key service delivery indicators.

E. Exit Strategy and Recommendations

PAIMAN had key elements of an exit strategy embedded into its model of integrated service delivery. From the outset, PAIMAN catered for exit by:

- Increasing the level of awareness about MNCH issues and changing health seeking behavior;
- Encouraging the incorporation of key aspects of the PAIMAN model for MNCH services into Government's institutional arrangements and programs in the health sector;
- Building capacity of the public health sector to plan for and deliver MNCH services;
- Encouraging and strengthening the private sector to provide services and demonstrating the potential for public-private partnerships;
- Building the role of the community in a broad range of areas including monitoring, supervision, quality control, facilitation and support.

PAIMAN has worked closely with public sector officials to enable them to learn from the experience of PAIMAN and incorporate the lessons in the on-going National Programs for MNCH, Family Planning and Primary Health Care. PAIMAN assisted in making key policy and institutional changes to the government's communication and advocacy strategy. PAIMAN has also influenced the scope of work of the LHW and helped the government develop its CMW strategy and program.

In the last year of the project, PAIMAN worked closely with key government stakeholders to apprise them of the best practices and lessons learned from the project's experience. A series of national meetings were held in this connection such as the *National Advocacy Seminar for Scaling up of Best Practices* (October 2009) in which high level stakeholders signed The Karachi Declaration. Two national meetings were organized to develop standard training packages in collaboration with MNCH, IMNCI and EMNC, and institutionalize them as part of the pre-service training program of public sector health workers. In February 2010, a national meeting was organized by PAIMAN to discuss the areas which needed attention for smooth implementation of CMW Initiative. This was further expected to aid a smooth transition of key tasks performed by PAIMAN during the last six years in connection with the CMW.

PAIMAN Interventions that will Require Additional Attention

The CMW initiative is at a stage where the system related interventions have to be streamlined and fine tuned so as to ensure quality service delivery by the CMWs. Several policy level and organizational development issues still need to be addressed, such as rules and regulations by PNC, registration and renewal of licenses, role of EDO Health/MNCH Program staff at district level, development of a MIS for CMWs and its linkages with DHIS, use of information of monthly reports, and the source of supply of contraceptives. Among the organizational development issues is the level of

coordination between the CMWs, LHW and TBAs, the types of m eetings to be attended by them, and the need for uniform monitoring and reporting tools.

The integrated MNCH/FP approach and interventions require replacement of HMIS with DHIS. The District Health Information System's National Scaling-up Plan presen ted by the JICA-funded team was approved more than two years ago. Effort s need to be continued to provide on-going support to provinces to scale up DHIS, particularly in the Sindh and Balochistan provinces. This includes refresher training to health care providers on DHIS tools, availability of printed DHIS tools, agreeing upon a standardized electronic a pplication to process and analyze the DHIS information; refresher training on interpretation of so ftware outputs and analysis; technical support to use of information in district health annual planning and management decision making; data quality assurance; and supportive supervision to use DHIS at all levels, such as district and facility DHIS review meetings.

Threats to PAIMAN's Exit Strategy

Two recent events have thrown a shadow on gove rnment capacity to fully take on board and provide continuity to some of the initiatives introduced by PAIMAN: The adoption of the 18 th Amendment and the devastating floods of August 2010. The first development seeks to abolish the concurrent legislative list and as a result health legislation will no longer be the prerogative of the Federal Government. This has caused considerable unc ertainty about the role of the Federal Government in the area of health which is now considered a provincial subject and is likely to mean a retrenchment in the role of the GOP. Its impact on the federally sponsored MNCH and FP/PHC programs is not yet clear. Also, the decision space at federal, provincial and district levels needs to be clearly redefined and capacity issues addressed.

The massive damage caused by the floods is likely to divert government attention to the more immediate issues of resettlement and rehabilitation of the displaced people and the task of addressing the looming threat of outbreak of disease epidemics. This will overshadow the consolidation of some of the initiatives under PAIMAN ownership expected to be taken over by the government and scaled up.

It is clear that both events will threaten the sustainability of the PAIMAN interventions. To consolidate USAID's investments in the he alth sector and bring a lasting positive change in the lives of mothers and children in Pakistan, *two to three years of additional continued technical support would be critical* to provide the enabling policy environment and systems support needed for the PAIMAN model to be adopted, expanded, and sustained over time.

F. Dissemination of Results

PAIMAN held district-level dissemination meetings in July and August 2010, where district-specific PAIMAN activities and results were presented. ED Os Health and training institutes representatives received PAIMAN-prepared training materials , guides, and manuals. Outstanding members of collaborating institutions that contributed to PAIMAN success were given awards.

PAIMAN organized Provincial Dissemination Meetings for Balochistan in Quetta on July 19 and for AJK in Muzaffarabad on July 22. These meetings were chaired respectively by the Secretary Health

Government of Balochistan Mr. M. Jalal Khan and by the Health Minister AJK Mr. Najeeb Naqi. PAIMAN interventions were shared with provincial stakeholders and soft and hard copies of all curricula, training databases, media products, and reports were handed over to provincial authorities.

Provincial dissemination meetings scheduled for Sindh, KPK, and Punjab were postponed because of the flood emergencies.

Chaired by the Deputy USAID Mission Director (Pakistan), Ms. Denise Herbol, by the Secretary Health, Mr. Khushnood Akhtar Lashari, and by the Director General Ministry of Health Dr. Rashid Jooma, the National Dissemination and 5th TAG Meetings were held November 11-12, 2010 in Islamabad. Results of various operations research studies (see page 51) and details of the Project endline results from the initial 10 districts were presented. The Project's six years were reviewed and accomplishments and impact highlighted. During a question and answer period, insightful questions raised were answered to the audience's satisfaction.

PAIMAN TAG members presented the following six policy briefs to guide policy makers in scale-up and sustainability of PAIMAN initiatives (see Annex 5 for the seven briefs).

- *Researching Diversity of Audiences through Innovative Communication*
- *Creating a Cadre of Community Midwives to Improve the Human Resource Gap in Community Obstetrics*
- *Building and Agenda for Newborn and Child Health Research in PAIMAN: Issues and Challenges*
- *Strengthening Health Information Systems*
- *Decentralization and Health System Strengthening of District Health Authorities*
- *Integrated Obstetric Care: Implementing a Continuum of Care*
- *Testing the Feasibility of Misoprostol for Prevention of PPH in the Home Setting in Rural Pakistan*

As part of the National Dissemination Meeting Dr. Jooma, Dr. Nabeela, and Ms. Herbol chaired a press conference where print and electronic media posed a range of questions regarding PAIMAN, its impact on the public health services in Pakistan, and the way forward.

ANNEX 1: Summary of Targets and Results

	Objectively verifiable Indicators of achievement	Results	
		Baseline 2005	Endline 2010
1	Neonatal mortality	30/1000 live births	23/1000 live births
2	Percent of births assisted by skilled attendants	41%	52%
3	Percentage of women aged 15-49 who received 3 or more ANC visits during last or current pregnancy	34%	44%
4	Percentage of pregnant women who report receiving at least 2 doses of TT during last live birth	48%	56%
5	Percentage of women who report having a postpartum visit within 24 hours of giving birth	40%	53%
6	District health budgets show an increase of 50% or more over the life of the project (all sources excluding USAID)	Rs. 1.300 Million	Rs. 2.078 Million (60%)

Table 1: Summary of Targets and Results Cooperative Agreement 391-A-00-05-01037																
Activity	Quarter IV Target and Result		Annual Target and Result by Quarter PY6 (2009-2010)						Life of Project Targets and Results by Year (2004-2010)								Remarks
				Cumulative Result by Quarter PY6						Result by Project Year							
	Target	Result	PY6 Target	QI	QII	QIII	QIV	Total PY6	Life-of-Project Target	PY1	PY2	PY3	PY4	PY5	PY6	Total Achieved PYs1-6	
SO 1: Increase Awareness and Promote Positive Maternal and Neonatal Health Behaviors																	
Communication Planning and Evaluation Training for Managers																	
Federal/provincial/district managers trained	0	0	67	0	0	29	0	29	160	0	39	26	28	0	29	122	**Life-of-Project target achieved**
Training of Journalists/*Ulama*																	
Journalists trained	0	0	30	0	29	0	0	198	254	0	0	141	28	55	29	253	**Life-of-Project target achieved**
Ulama trained/oriented									735	0	0	100	285	450		835	**Life-of-Project target achieved**
Mass Media																	
Produce TV drama serial/series on MNCH issues (no. of episodes)	0	0	14	0	0	0	0	0	27	0	0	7	6	0		13	In consultation with partners and USAID approval, activity dropped replaced with feature film
Produce and air district-level talk show	0	0	23	0	0	0	0	0	35	0	0	12	0	0		12	Security concerns in most new districts--activity postponed and then dropped

Table 1:	Summary of Targets and Results																
	Cooperative Agreement 391-A-00-05-01037																
Activity	Quarter IV Target and Result		Annual Target and Result by Quarter PY6 (2009-2010)						Life of Project Targets and Results by Year (2004-2010)								Remarks
				Cumulative Result by Quarter PY6						Result by Project Year							
	Target	Result	PY6 Target	QI	QII	QIII	QIV	Total PY6	Life-of-Project Target	PY1	PY2	PY3	PY4	PY5	PY6	Total Achieved PYs1-6	
Produce and air radio talk shows									39	0	0	0	0	39		39	Life-of-Project target achieved
Prepare, print and distribute district-specific PAIMAN brochures									24	0	5	5	0	14		24	Life-of-Project target achieved
Produce and air MNCH music video	0	0	1	0	1	0	0	1	2	0	0	0	1	1	1	2	Life-of-Project target achieved
Develop concept for and produce MNCH/FP TV magazine show	0	0	13	0	13	0	0	13	13	0	0	0	0	0	13	13	Life-of-Project target achieved
Theater Performance																	
Community theater groups/performances held									75	8	5	16	24	22		75	Life-of-Project target achieved
Stage plays at federal/provincial headquarters	0	0	4	0	0	0	0	0	7	0	0	2	1	0		3	LHW program did not organize these plays
Putlee Tamashas conducted in PAIMAN district rural communities									662	0	0	112	350	200		662	Life-of-Project target achieved
Appoint goodwill ambassadors and support their activities									1	0	0	1				1	Life-of-Project target achieved
Sensitization																	
Support village fairs									36	3	7	26				36	Life-of-Project target achieved
Organize district assembly briefings on MNCH	0	0	3	0	0	0	0	0	34	2	5	7	7	10		31	At agreement of all parties activity completed

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	Target	Result	PY6 Target	QI	QII	QIII	QIV	Total PY6	Life-of-Project Target	PY1	PY2	PY3	PY4	PY5	PY6	Total Achieved PYs1-6	
Sensitize local line departments									516	4	387	125				516	Life-of-Project target achieved
Sensitize CBOs and NGOs									362	9	212	141				362	Life-of-Project target achieved
Sensitize village elders/opinion leaders (*hujra/chopal* meetings)									647	6	399	242				647	Life-of-Project target achieved
Sensitize parliamentarians, *nazims*, and DCOs	0	0	30	0	0	0	0	0	115	0	85	0	0	0	30	85	
Sensitization meetings conducted with local *nazims* and elected representatives									357	4	259	94				357	Life-of-Project target achieved
Events for Community Mobilization (CM) Partners																	
Local MNCH CAM events conducted									431	30	103	143	94	61		431	Life-of-Project target achieved
MNCH mega events conducted	0	0	26	4	18	6	0	28	81	0	2	14	8	31	28	83	Life-of-Project target achieved
CM-medical camps held									50	0	0	6	33	11		50	Life-of-Project target achieved
Support Group (Group Counseling)																	
Support groups (SG) held	0	0	0	976	208	0	0	1,184	45,231	0	0	9,792	20,359	16,318	1,184	47,653	Life-of-Project target achieved
SG meetings held	14500	14,511	202,975	49,671	65,673	70,241	14,511	2,00,096	454,786	0	645	16,454	80,804	153,908	2,00,096	4,51,907	Life-of-Project target achieved

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	Target	Result	PY6 Target	QI	QII	QIII	QIV	Total PY6	Life-of-Project Target	PY1	PY2	PY3	PY4	PY5	PY6	Total Achieved PYs1-6	
SG beneficiaries reached	142,500	1,42,893	1,855,326	534,115	680,703	556,318	1,42,893	1,914,029	4,770,226	0	6,450	267,760	927,186	1,713,504	1,914,029	4,828,929	Life-of-Project target achieved
Committee Meetings																	
Organize and support facility-based health committees (BHU, RHC,THQ)									209	8	53	79	22			162	Deemed not cost effective, stopped in 2007
Conduct facility-based health committee meetings (# of meetings)									368	8	53	75	90			226	
Products																	
CDKs-samples									45,605	-	700	4,905	16,915	15,847		38,367	Life-of-Project target achieved
CDKs-sold									124,395	-	4,300	22,895	34,600	76,748		138,543	
Interpersonal Communication (IPC)																	
IPC meetings held									173,834	-	2,000	61,734	97,857	12,243		173,834	Life-of-Project target achieved
Beneficiaries reached									350,203	-	3,200	126,377	196,140	24,486		350,203	
Services *(Clinic Sahoolat)*																	
Clinic *Sahoolat* provider outlets									3,022	0	40	904	1,847	231		3,022	Life-of-Project target achieved
Beneficiaries reached									67,871	0	200	19,800	42,789	5,223		68,012	
SO 2: Increase Access to and Community Involvement in MNCH Services																	
Improve Access to Health Facilities																	
GoodLife surgical clinics established									50	0	0	41	9	0		50	Life-of-Project target achieved
GoodLife non-surgical clinics established									550	0	50	430	89	0		569	Life-of-Project target achieved

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	Target	Result	PY6 Target	QI	QII	QIII	QIV	Total PY6	Life-of-Project Target	PY1	PY2	PY3	PY4	PY5	PY6	Total Achieved PYs1-6	
Orient TBAs on clean delivery practices																	
Facilitators trained									50	0	0	28	0	22		50	Life-of-Project target achieved
TBAs oriented by JSI	0	0	101	135	0	0	0	135	1,850	0	0	1,082	437	230	135	1,884	Life-of-Project target achieved
TBAs oriented by Greenstar									400	0	0	369	22			391	Life-of-Project target achieved
Emergency Transport																	
Ambulances for community-managed emergency transport system (RESAI) delivered	0	0	50	10	40	0	O	50	50	0	0	0	0	0	50	50	Life-of-Project target achieved
SO 3: Improve Service Quality in Both Public and Private Sectors																	
Selected Health Facilities Upgraded																	
DHQ Hospitals Upgraded	**100%**	**99.94%**	**100%**	**98.72%**	**98.72%**	**99.83%**	**99.94%**	**98.72%**	**100.0%**	**0.0%**	**0.0%**	**90.0%**	**98.2%**	**98.6%**	**99.94%**	**99.94%**	**31 health facilities first 10 districts**
THQ Hospitals Upgraded	**100%**	**99.90%**	**100%**	**98.33%**	**98.67%**	**99.56%**	**99.90%**	**99.90%**	**100.0%**	**0.0%**	**0.0%**	**89.0%**	**96.4%**	**98.1%**	**99.90%**	**99.90%**	
RHC/BHU Upgraded	**100%**	**99.92%**	**100%**	**97.92%**	**98.33%**	**99.67%**	**99.92%**	**99.92%**	**100.0%**	**0.0%**	**0.0%**	**89.0%**	**98.3%**	**97.9%**	**99.92%**	**99.92%**	
SO 4: Increase Capacity of MNCH Managers and Health Care Providers																	
Essential Maternal and Newborn Care (EMNC)																	
Master trainers trained (6 days)									145	0	70	0	0	70		140	Life-of-Project target achieved
Health care providers trained (6 days)	0	0	39	24	18	0	0	42	2,201	0	440	652	587	483	42	2,204	Life-of-Project target

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				Cumulative Result by Quarter PY6						Result by Project Year							
	Target	Result	PY6 Target	QI	QII	QIII	QIV	Total PY6	Life-of-Project Target	PY1	PY2	PY3	PY4	PY5	PY6	Total Achieved PYs1-6	
																	achieved
Health care providers who received refresher training (4 days)									500	0	0	17	356	122		495	Life-of-Project target achieved
Training of EMNC monitors (1 day)									138	0	63	0	0	79		142	Life-of-Project target achieved
Comprehensive EmONC Trainings																	
HCPs who received Community EmONC (2 weeks)									75	0	0	47	27			74	Life-of-Project target achieved
Specialists who received advance Community EmONC skill training			44	0	42	0		42	60	0	0	0	0	16	42	58	Life-of-Project target achieved
Training of LHWs on SG Methodology																	
National-/provincial-level master trainers trained									82	0	0	37	0	50		87	Life-of-Project target achieved
District-level trainers trained									1,603	-	-	741	302	557		1603	Life-of-Project target achieved
LHWs trained									11,022	-	-	3,419	3,833	3805		11057	Life-of-Project target achieved
Community Midwifery Training																	
Master trainers trained on regular new midwifery training curriculum (4 weeks)									44	0	44					44	Life-of-Project target achieved
Tutors trained on regular new midwifery training curriculum (4 weeks)	0	0	37	0	0	0	0	0	219	0	85	20	14	63	0	182	All available tutors in PAIMAN

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				Cumulative Result by Quarter PY6						Result by Project Year							
	Target	Result	PY6 Target	QI	QII	QIII	QIV	Total PY6	Life-of-Project Target	PY1	PY2	PY3	PY4	PY5	PY6	Total Achieved PYs1-6	
																	districts were trained
Tutors trained on refresher midwifery training (2 weeks)									22	0	22	0	0	0		22	Life-of-Project target achieved
HCPs receiving refresher midwifery training	0	0	16	36	0	0	0	36	730	0	80	417	0	217	36	750	Life-of-Project target achieved
Students enrolled in 18-month new midwifery training curriculum									1,624	0	0	775	375	473		1,623	Life-of-Project target achieved
Women supported to achieve 8th grade education for LHW eligibility	82	82	118	0	0	82	0	82	200	0	0	0	0	82	82	164	
Women supported for under matric (10th. grade) certificate to become eligible for CMW enrollment									80	0	0	0	0	80		80	Life-of-Project target achieved
Training of Private Providers																	
Private providers trained on essential maternal and newborn care									550	0	50	430	89	0		569	Life-of-Project target achieved
Private providers trained on advanced maternal and newborn care									50	0	0	41	9	0		50	Life-of-Project target achieved
Implementation of IMNCI Trainings																	
Provincial community IMNCI TOTs trainers trained									75	0	0	0	0	122		122	Life-of-Project target achieved. 47 extra trained on the advice of NP to have 2-3

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				Cumulative Result by Quarter PY6						Result by Project Year							
	Target	Result	PY6 Target	QI	QII	QIII	QIV	Total PY6	Life-of-Project Target	PY1	PY2	PY3	PY4	PY5	PY6	Total Achieved PYs1-6	
																	trainers in each district.
Participants district community IMNCI TOT	0	0	25	27	0	0	0	27	640	0	0	0	0	615	27	642	Life-of-Project target achieved
LHWs trained on community IMNCI	0	0	2,605	767	1,665	185	0	2,617	6,570	0	0	0	0	3,965	2,617	6,582	Life-of-Project target achieved
HCPs trained at facility-based IMNCI trainings	0	0	276	203	78	0	0	281	1,100	0	0	0	0	824	281	1105	Life-of-Project target achieved
HCPs trained on IYCF	0	0	74	108	0	0	0	108	350	0	0	0	0	276	108	384	Life-of-Project target achieved
Client-Centered Approach (CCA) for Delivering RH Services Training																	
District trainers trained in CCA									27	0	0	0	0	27		27	Target for the life of the project achieved
Doctors and paramedics trained in CCA	0	0	38	20	20	0	0	40	400	0	0	0	0	362	20	402	Life-of-Project target achieved
Clinical Training of Health Care Providers on CS Procedures in non-FALAH Districts																	
HCPs trained on IUCD insertion									116	0	0	0	0	120		120	Target for the life of the project achieved
HCPs trained on minilap	0	0	3	0	6	0	0	6	32	0	0	0	0	29	6	35	Life-of-Project target achieved

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				Cumulative Result by Quarter PY6						Result by Project Year						
	Target	Result	PY6 Target	QI	QII	QIII	QIV	Total PY6	Life-of-Project Target	PY1	PY2	PY3	PY4	PY5	PY6	Total Achieved PYs1-6	
HCPs trained on vasectomy									32	0	0	0	0	28		28	Target for the life of the project achieved
Other Trainings																	
HCPs trained on AMTSL and partograph use	0	0	116	92	28	0	0	120	618	0	0	0	268	234	120	622	Life-of-Project target achieved
HCPs trained on infection prevention	0	0	0	0	0	0	0	0	370	0	0	0	120	240	0	360	Life-of-Project target achieved
HCPs trained on essential surgical skills (MNCH/FP)	0	0	113	74	31	0	0	105	320	0	0	120	0	87	105	312	Life-of-Project target achieved
Ambulance staff (drivers and paramedics) trained on basic life support	0	0	29	85	0	0	0	85	220	0	0	0	122	69	85	276	50 additional drivers were trained for RESAI ambulances
District management staff trained in leadership skills	0	0	45	18	19	0	0	37	169	0	17	72	0	35	37	161	Life-of-Project target achieved
SO 5: Improve Management and Integration of Services at All Levels																	
Capacity Building of District Health Managers																	
Trained on strategic and annual operational planning	0	0	34	39	0	0	0	39	240	0	60	60	0	86	39	245	Life-of-Project target achieved
Trained o strategic annual operational plan preparation									57	0	0	0	57			57	Life-of-Project target achieved

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	Target	Result	PY6 Target	QI	QII	QIII	QIV	Total PY6	Life-of-Project Target	PY1	PY2	PY3	PY4	PY5	PY6	Total Achieved PYs1-6	
Trained on logistical systems									46	0	0	32	14			46	**Life-of-Project target achieved**
Trained on financial management	0	0	59	0	0	0	0	0	218	0	0	60	38	61	0	159	Training target for new districts revised to 5 per district (initially 10).
Trained on supportive supervision	0	0	37	11	0	0	0	11	205	0	0	0	85	83	11	179	Vacant positions of potential trainees main reason for under achievement
Health Management Information System (HMIS)																	
District managers trained on evidence-based decision making									157	78	79					157	**Life-of-Project target achieved**
Trained on HMIS data collection tools and methods									1,240	0	1,240					1,240	**Life-of-Project target achieved**
Received refresher DHIS data collection tools and methods training	0	0	1,826	1,216	0	375	0	1,591	4,059	0	0	0	0	2,233	1,591	3,824	All available HCPs trained
Trainers receiving DHIS TOT									69	0	0	0	0	85		85	**Life-of-Project target achieved**
Computer personnel trained on DHIS software use	0	0	80	88	0	0	0	88	80	0	0	0	0	0	88	88	**Life-of-Project target achieved**

ANNEX 2: PROJECT DISTRICTS AND AREAS

Initial Districts, October 2004
Balochistan Province
Jafferabad
Lasbela
Khyber Pakhtoon Khwa Province
Upper Dir
Buner
Punjab Province
DG Khan
Jhelum
Khanewal
Rawalpindi
Sindh Province
Dadu
Sukkur

Federal Administered Tribal Areas, December 2007
Khyber Agency
Kurrum Agency
Kohat Region
Peshawar Region

Additional District, March 2008
Khyber Pakhtoon Khwa Province
Swat

Expansion Districts, October 2008
Azad Jammu and Kashmir Province
Bhimber
Sidhnoti
Balochistan Province
Gwadar
Quetta
Sibi
Zhob
Khyber Pakhtoon Khwa Province
Charasadda
DI Khan
Mardan
Peshawar
Punjab Province
Multan
Vehari
Sindh Province
Khairpur

ANNEX 3: DOCUMENTS AND REPORTS

- A Guide for Social Mobilization
- Assessing the Potential Acceptability of a New Cadre of Community Midwives for Pregnancy-and Delivery-Related Care in Rural Pakistan
- Baseline Household Survey for Districts Vehari, Multan, Khairpur, Mardan, Zhob, Sidhnoti, and Bhimber
- Baseline Report of Formative Research; Seven PAIMAN Districts
- Baseline Report of Household Survey; Ten PAIMAN Districts
- Buner District Supervisory System Assessment
- Civil Works Assessment-ten PAIMAN Districts
- Communication for Social Change, a Summary
- Communication, Advocacy and Mobilization; A Road Map (English)
- Communication, Advocacy and Mobilization; A Road Map (Urdu)
- Data collection form, PHDC, PHSA, DHDC Assessment Report
- Deaths of Women of Reproductive Age: In-Depth Analysis of Data from the Pakistan Demographic and Health Survey 2006-07
- Decision Space Analysis Baseline/Endline
- Decision Space and Capacity Assessment study
- Design of Supportive Supervision System
- District Financial Flow System, Review and Recommendations
- District Health Information System Manuals (English and Urdu)
- District Health Performance Target Setting, Situation Analysis
- District Health Plans; ten PAIMAN districts
- District Health Profiles--Districts Rawalpindi, Jhelum, DG Khan, Khanewal, Buner, Upper Dir, Jafferabad, and Lasbela
- District Supervisory Assessment System Report
- Draft of Assessment Report of Midwifery Schools in three PAIMAN districts in Punjab and one district in Sindh
- Draft Report of Training Needs Assessment of Senior District Managers and Outline of Management Training Package
- Effect of Dai Training on Maternal and Neonatal Care: An Operation Research Study
- EMNC Training Manuals in Urdu and Sindhi
- Evaluation Report of Putli Tamasha Pilot Test
- Finance Operational Manual
- Health Care Providers Training Manuals in English and Urdu for AN/PN, Neonatal Care and EmOC
- Health System Assessment Reports

- A Guide for Social Mobilization
- Assessing the Potential Acceptability of a New Cadre of Community Midwives for Pregnancy-and Delivery-Related Care in Rural Pakistan
- Baseline Household Survey for Districts Vehari, Multan, Khairpur, Mardan, Zhob, Sidhnoti, and Bhimber
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- EMNC Training Manuals in Urdu and Sindhi
- Evaluation Report of Putli Tamasha Pilot Test
- Finance Operational Manual
- Health Care Providers Training Manuals in English and Urdu for AN/PN, Neonatal Care and EmOC
- Health System Assessment Reports
- Health System Strengthening Endline Evaluation Report

ANNEX 4: AUDIO VISUAL PRODUCTS

- PAIMAN TV Talk Show (11 episodes)
- *Dancing Agents of Change,* Documentary on Puppet Shows
- *Zindagi ki Dore* documentary
- PAIMAN TV Drama Series (13 episodes)
- PAIMAN Music Video
- Maternal Health TV Commercial-Birth Preparedness
- Maternal Health TV Commercial-4 Antenatal Checkups
- Maternal Health TV Commercial-Delayed Bathing
- Maternal Health TV Commercial-Consulting Skilled Birth Attendants
- Maternal Health TV Commercial-Postnatal Checkup (Within 6 hours of birth)
- *Zindagi* Music Video
- Child Health TV Commercial
- Child Health TV Commercial
- *Ghai Aik Paiman* TV Talk Show
- PAIMAN Radio Magazine Show
- *PAIMAN After The Promise* Video
- *Call To Life* Documentary on PAIMAN *Ulama* Intervention
- *Sirf Do Qatron ki Baat* Documentary
- *Maan Music* Video
- *Maan Naslon ki Saiban* TV Talk Show (12 episodes)
- Diarrhea TV Commercial
- Colostrum TV Commercial
- Breastfeeding TV Commercial
- Immunization TV Commercial
- *Bol* Family Planning Commercial Film
- PAIMAN Project Documentary

ANNEX 5: POLICY BRIEFS

USAID FROM THE AMERICAN PEOPLE

PAIMAN Policy Brief

Reaching Diversity of Audiences through Innovative Communication

Supporting Evidence-based Maternal, Neonatal, Child Health and Family Planning Interventions

Background

Pakistan is a country with multiple ethnic groups, numerous languages, and diverse ideologies. Promoting better health-seeking behaviors presents many challenges that include endemic illiteracy and restricted mobility of women. Although there is potential for communication systems to enable the delivery of health messages to a widely dispersed and diverse audience, Pakistan's communication system is still developing and has uneven coverage. Access to mass-media varies drastically from one region to the other within the country. PAIMAN's baseline household survey illustrated that media access was 9% in Buner and spanned to 80% in urban Rawalpindi[1]. These results demonstrate a need for strategies that use multiple sources of information dissemination to improve reach and effectiveness of health messaging.

The cultural diversity in Pakistan calls for audience segmentation to develop culturally sensitive messages as well as to deliver them through reliable and credible venues. Keeping these challenges in view, PAIMAN adopted a media-mix approach which effectively employed a variety of communication and advocacy channels, including mass media, community media, and interpersonal communication to improve the maternal and neonatal health knowledge and practices of target populations.

In a culture where women's autonomy is limited, where their mobility is constrained, and above all, where taboos envelop pregnancy, support groups led by lady health workers (LHWs) were established to increase access to information and provide support. Local NGOs took this role in areas where LHWs were absent.

Interventions

- **Mass Media:** Produce television drama series, commercials, music videos, talk shows, journalist training in health communication and commercial feature film to create awareness and change behavior.
- ***Putli Tamasha:*** Puppet shows were presented in districts with limited access to television. Increased community dialogue on maternal and neonatal health issues.
- **Reaching *Ulama***: Built *ulama* (religious leaders) capacity to improve their skills to increase male involvement in maternal and neonatal health.
- **Women's support groups:** Strengthen LHW interpersonal communication skills to hold women's support groups.
- **NGO involvement in non-LHW areas:** Strengthen NGO staff skills for community mobilization and education activities.

Achievements and Impact

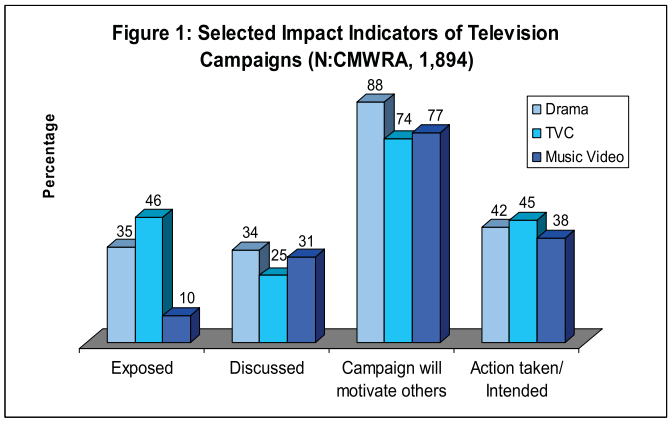
The comparison of baseline and endline data showed that mass media campaigns (drama, commercials, and talk shows) were effective in creating a dialogue and changing behaviors.

- Third Party Evaluation Study of PAIMAN's Mass-Media Campaign, 2008) showed that 42 percent of currently married woman of reproductive age (CMWRA) exposed to PAIMAN messages stated that they had adopted or intended to adopt new behaviors (see Figure 1). About one third of those exposed to messages (Drama, TVC, Music Video) discussed messages with their family members and friends. Those who were exposed to the campaign, majority of them said it will motivate viewers to change behaviors. Controlling for exposure to types of products, there was no difference in

The goal of the Pakistan Initiative for Mothers and Newborns (PAIMAN) was to reduce maternal, newborn and child mortality in Pakistan. The project worked through viable and evidence-based interventions and capacity building of existing programs and structures within health systems and communities to ensure improvements and supportive linkages in the continuum of health care for women from the home to the hospital. PAIMAN was implemented in 24 districts of Pakistan from 2004-2010 and reached 34 million people.

adopted behaviors indicating that all products were effective.

- The overall exposure to any one mass media product was over 51% while an estimated 8.1 million women of reproductive age across Pakistan were reached through the drama series, "*Paiman*" alone.



Cost-Effectiveness and Cost-Benefits: Ostensibly, mass media products' costs appear prohibitive. However, if their reach and impact is measured, it is evident that they can be extremely cost-effective. Twenty percent or 1.6 million women who were exposed to the mass media messages stated that they have adopted new behaviors (impact) demonstrating an immediate effect of the mass media messages. The program efficacy is 20% because change in behavior is taken as a measure of impact. The reported efficacy is similar to other international mass-media campaign experiences[2].

Putli Tamasha (puppet shows). Health advocacy through puppetry has been tried successfully in countries ranging from South Africa[3], and Kenya[4], to Romania.

- *Putli tamasha* had an impact in changing knowledge of those who attended a show compared to those who did not. Results show that a significant change in knowledge (30%) was observed about delayed bathing of babies (six hours after birth). Modest changes are also noted in knowledge of recommended number of ANC visits (17%), exclusive breastfeeding for six months (13%), and breastfeeding for two or more years (16%).
- The cost for per participant was 1.8 rupees.

Ulama: The *ulama* intervention had two main objectives: to increase male involvement and knowledge for better MNCH-seeking behavior and to sensitize and build capacity of *ulama* to promote health messages related to MNCH.

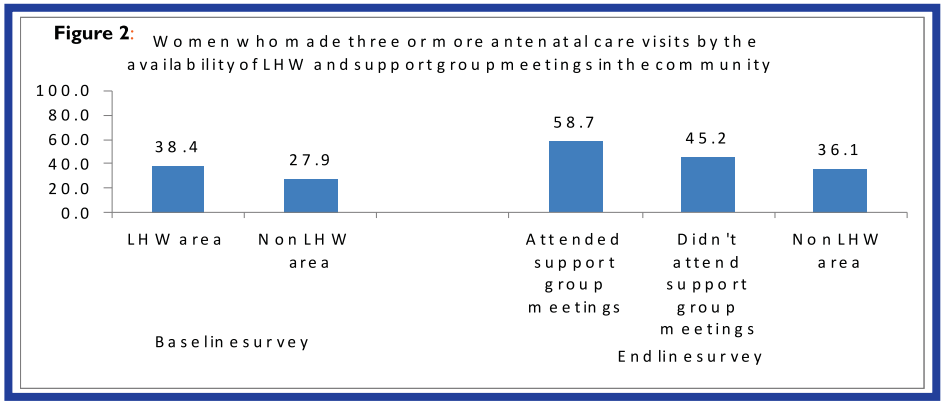
- There was a 15% to 30% difference in knowledge about antenatal care (ANC) and number of ANC visits among those who were exposed to messages through sermons than those who were not. Similarly, there was a 20% or more increase in knowledge about various aspects of breastfeeding among exposed respondents than among non-exposed respondents.[5]
- The results showed that men exposed to MNCH messages during Friday sermons exhibited a higher level of MNCH knowledge compared with men not exposed, indicating effectiveness of the exposure.
- By project end, approximately 1,000 *ulama* had been trained and sensitized on MNCH and joined PAIMAN's network. The *ulama* intervention has evolved into a model which is being successfully replicated for other health advocacy interventions, e.g., polio vaccination in district Swat.
- PAIMAN developed a comprehensive resource book which emphasizes the importance of *ulama* in ensuring MNCH in Pakistan. The book has been widely distributed and is often referred to in religious gatherings.

Women's Support Groups:

- More than 11,057 LHWs in 24 PAIMAN districts are trained and hosted 47,653 support groups in their communities. Reported through a monitoring system, these groups have met 451,907 times through June 2010 and more than 4.83 million contacts were made, as some of these women likely attended two or more support groups.
- An evaluation comparing PAIMAN and non-PAIMAN districts revealed that the existence of support groups and women's committees is almost 100% in PAIMAN districts as compared to 70% in non-PAIMAN districts.

> ***"After watching these commercials I will go for monthly checkups."***
> (CMWRA, Age 22, Education 5, Urban, Sukkur)

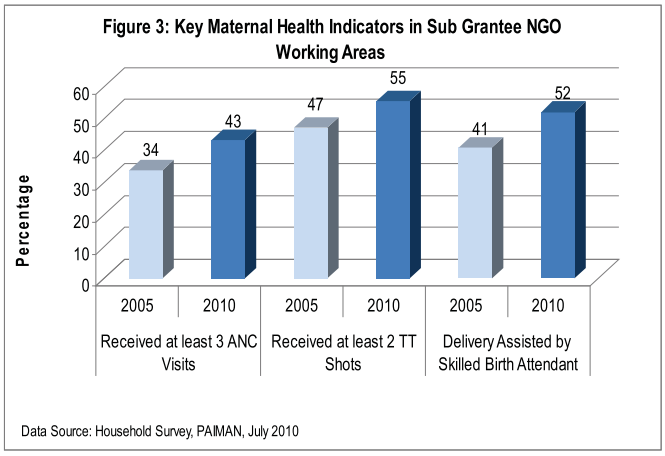
- The baseline and endline survey comparisons show that women who attended LHW support groups had more ANC visits compared to those who did not attend the groups and women living outside LHW areas, indicating effectiveness of the PAIMAN-trained LHW support groups (see Figure 2).



> ***"I learned from these dramas, and advised others, about health care of mother and child, and about check-ups during pregnancy, as well as special care during and after childbirth."***
>
> (CMWRA, Age 25, Education 08, Rural, Rawalpindi)

NGO Involvement in Non-LHW Areas:

- PAIMAN worked through local subgrantee NGOs in the areas where LHWs were not present and covered 20-40% uncovered areas in 24 PAIMAN districts.
- Local NGOs reached 2,103,284 community members in non-LHW areas, creating awareness of better MNCH practices.
- The baseline and endline comparisons showed that in PAIMAN NGO working areas, women have better practices related to ANC check-up, tetanus toxoid (TT) shots, and delivery by skilled birth attendants (see Figure 3)



Lessons Learned and Challenges

Mass media

- Concurrent interpersonal communication that reinforces mass media messages is essential to take advantage of exposure and encourage positive behavior change. These messages could be delivered by NGO staff or through the public health system or a combination of both.
- Mass media coverage in Pakistan is not 100 percent; therefore, other means of communication must also be incorporated into an education campaign (e.g., the *putli tamasha* puppet shows).
- Extensive research and planning for audience segmentation for appropriate and relevant message development must precede creation of mass media products.
- Ensuring the quality of productions and their extensive marketing is essential to the success of the intervention.
- Mass media, especially high-quality television dramas, is a cost-effective means to bring about exposure and facilitate adoption of new behaviors.

Puppet shows

- *Pulti tamasha* are cost-effective and provide much needed entertainment opportunities to villagers, particularly women. Puppetry and other traditional forms of entertainment can be effectively scaled-up for health education purposes.
- The shows provide opportunities for generating dialogue on social issues such as women's role, and autonomy and have more significant and long-lasting impact by strengthening community dialogue, connectedness and changing norms.
- Local organizations and partnerships play a key role in such interventions, as they are familiar to the community, can facilitate discussions in local languages, and help in gathering a larger audience.

> ***"Ulama are duty-bound to promote and support the cause of mother and child health. As a nation we have failed to provide better health facilities to our women. This is the most important challenge facing Pakistan."***
>
> -Mufti Muhammad Rafi Usmani, Mufti-e-Azam Pakistan at the National Ulama Convention

Ulama

- One-to-one meetings with senior and influential *ulama* were found to be an extremely successful strategy, after a trial and error period of mass training *ulama*.
- Sermons delivered during Friday prayer are an effective medium for reaching out to large populations.
- Regular backstopping and frequent interaction with *ulama* must be maintained to achieve desired results.
- *Ulama* considered mother, newborn, and child health to fall under the realm of "rights and responsibilities in Islam" by individuals, communities, and the state.
- Trust and confidence building need to be integrated into the interventions with *ulama* as they are cautious of extending their support to development organizations suspicious of them having western agendas.

Recommendations

Mass media

- MNCH program should be strategic in the selection and use of national and regional **terrestrial and cable** networks having greater access and credibility.
- For wider viewership and impact, PAIMAN's multi-media

messages should be dubbed in local languages and re-telecast.

- For synergistic impact, television products for campaigns should be packaged and delivered in a series with common or linked themes. These themes should complement each other and could include: family planning, pregnancy, neonatal care, breastfeeding and birth spacing. By doing this, any project would yield greater retention and adoption of healthy behaviors.
- Some mass media products—such as television commercials—can be aired repeatedly by the government, at subsidized rates, to sustain the achieved behavioral change.

Puppet shows

- This effective communication medium should be used to fill the mass-media gap in Pakistan.
- Puppet shows should feature in future behavior change communication (BCC) campaigns in remote areas of Pakistan where puppetry is a culturally acceptable and relevant form of entertainment.

Ulama

- To successfully work with *ulama*, a technical team must be culturally sensitive to the *ulama* perspective.
- Highly influential *ulama* belonging to different sects must be identified and brought on board prior to any major mobilization effort for the disciples.
- The messages delivered through *ulama*, particularly in Friday *wa'az,* must be inspired by religious prescriptions.
- Due to its largely unexplored potential and consequences, this avenue deserves further investigation for large-scale implementation.

Women's Support Groups

- The National Program for Family Planning & PHC based on its effectiveness over existing methodology should adopt the Support Group Methodology as an integral part of the program, as the requisite machinery, i.e., the LHWs, LHS, and the training mechanism are already there.
- The LHW program should revise the LHW training curriculum to incorporate the IPC skills such as group facilitation, counseling, use of IEC material, and handling question answer sessions.
- Regular monitoring mechanisms need to be strengthened to ensure that there are no management gaps and group meetings are held regularly in all geographical areas.
- structures and resources for empowering communities to take care of their health.

NGOs involvement in non-LHW areas

- The public health system could benefit from involving NGOs in areas where LHWs are not working and use their resources for community education and mobilization for better health care. This strategy would reduce the burden on government resources while still utilizing community structures and resources for empowering communities to take care of their health.

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USAID FROM THE AMERICAN PEOPLE

PAIMAN Policy Brief

Creating a Cadre of Community Midwives to Improve the Human Resource Gap in Community Obstetrics

Background

Pakistan remains far behind other countries in the region in improving access to maternal and neonatal services. Every year, approximately 4.3 million births take place, of which 2.6 million are not attended by a skilled birth attendant (SBA). Between 5 to 15 percent of these women develop complications during pregnancy and without a to SBA to help identify complications and provide referrals to the hospital, their risk of death increases.

In the last six years, PAIMAN project has developed and promoted a new cadre of community midwives (CMWs) in Pakistan to support the government's efforts to improve access to skilled birth attendance. By increasing the number of trained CMWs, the project has helped address Pakistan's human resource challenges for maternal and neonatal services.

Community midwives are women selected from the community, who have a minimum of 10 years of education. Once selected, they undergo a rigorous 18 month training that includes three-to-six months of hands-on field experience at the community level. During this training, each CMW is expected to observe and then conduct (under supervision and independently) a specified number of deliveries. CMWs also visit homes of pregnant women and/or women in labor with the support of lady health workers (LHW). After training, the CMW takes a final examination administered by the Provincial Examination Board, to be certified as a midwife. The Pa kistan Nursing Council (PNC) registers the CMWs, granting them a practicing license and maintains their records. This training costs 1500 US dollars per CMW in public sector midwifery schools and a little more in the private sector midwifery schools.

Interventions

PAIMAN had a four pronged strategy to increase CMWs and retain them:

- Strengthen CMW training schools
- Improve CMW training by developing training manuals and support materials
- Improve eligibility of women in low-literacy areas by developing a bridging curriculum to allow young women to complete matriculation and enroll in the CMW training
- Link CMWs with the health delivery system

Achievements and Impact

The National Maternal, Newborn and Child Health (MNCH) Program had set a goal to train 12,000 CMWs in five years. PAIMAN pledged to train 2,000 of these CMWs. While not quite reaching that target, PAIMAN did make some progress in its progress with the National MNCH Program:

- 1,624 CMWs were enrolled in PAIMAN's training between 2006 and 2010 in 24 selected districts.
- A total of 1,020 CMWs have graduated from the program out of which 962 are deployed in the field.
- As of 2010, the CMW retention rate was 90 percent.

The project also had a halo effect:

- Many international donors began providing funding for CMW training such as UNICEF, UNFPA, Sweden, Norway, and Great Britain.
- USAID funded the Technical Assistance for Midwifery, Information and Logistics (TACMIL) project. It was the

The goal of the Pakistan Initiative for Mothers and Newborns (PAIMAN) was to reduce maternal, newborn and child mortality in Pakistan. The project worked through viable and evidence-based interventions and capacity building of existing programs and structures within health systems and communities to ensure improvements and supportive linkages in the continuum of health care for women from the home to the hospital. PAIMAN was implemented in 24 districts of Pakistan from 2004-2010 and reached 34 million people.

first project in Pakistan ever to have midwifery in its title.

To fill human resource gap of qualified CMWs, PAIMAN achieved many results after interventions:

1. Strengthen CMW schools' infrastructure

- 29 midwifery schools were upgraded and provided teaching aids and furniture for their hostel, mess and bedrooms. PAIMAN also constructed a new dormitory at the Public Health Nursing School (PHNS) in Mardan.

2. CMW training and materials development

- The International Confederation of Midwives (ICM) and World Education designed a trainers' manual and trained 44 midwifery master trainers. These master trainers trained in turn 240 midwifery tutors from all over Pakistan.
- With support from the Midwifery Association of Pakistan and ICM, PAIMAN was able to develop teaching/ training materials and lesson plans for the improvement of CMW training.
- PAIMAN commissioned the Midwifery Association of Pakistan to develop a four week refresher training course, as well as support materials and quality assurance tools, including a log book for evaluation of skills, for the midwifery training.
- 730 functioning lady health visitors (LHVs) and midwives were given refresher courses to enhance their competencies. These groups were associated with the tertiary care hospital for hands on training. They were also trained on active management of the third stage of labour and use of the partograph in coordination with the Midwifery Association of Pakistan.
- PAIMAN assisted all CMWs to set up their birthing stations after graduation. Responsibility for their follow-up was handed over to the National MNCH Program. As per the agreement with PAIMAN, the National MNCH Program is now supervising the CMWs and paying a Rs. 2000 per month retainer fee to each practicing CMW. The reason for this provision of retainer fees is to allow CMWs to establish their practice and pursue midwifery as their career. In return, the CMW will provide monthly report of her performance, on a standard document, to the nearest public sector health facility and will also attend monthly meetings at the health facility which will help establish links with the LHWs and health facility staff for referrals.

3. Improve enrollment of women by improving their education

- In rural areas—particularly in Khyber Pakhtoonkhwa and Balochistan provinces—it is very difficult to find women who fulfill the minimum education criterion for selection. Thus, PAIMAN and its partners developed a bridging programme to improve the educational level of women who did not qualify for the CMW training. Eighty young women

participated in the program and succeeded in meeting the requirement of matriculation. The young women who completed this program are now eligible to enroll in midwifery training for the school year starting in September 2010.

4. Linking CMWs with the health delivery system

- Linkages to the existing health system are essential for the new cadre of CMWs to be effective. These linkages not only facilitate work and support the CMW, but also establish their credibility in the community. The following linkages were created:
  1. CMWs were introduced to their community prior to their deployment through group meetings and community mobilization events. Each CMW works at the community level within her health center catchment area (which also serves as the referral health facility for her).
  2. CMWs are mandated to establish rapport with the LHWs and traditional birth attendants (TBAs) in the catchment area and agree on division of responsibilities.
  3. CMWs are mandated to attend monthly meetings with all LHWs at their respective health facilities. Like LHWs, CMWs prepare a monthly report and present this report to lady health supervisors (LHS).
  4. The LHS in turn, compiles the CMWs' reports and submits a comprehensive report to the district office. The LHS and LHVs of the health facility jointly monitor CMWs: the LHS monitors logistics and the LHV focuses on technical work.

Lessons Learned and Challenges

1. There is a need to improve the image and reputation of CMWs at the community level. The community midwives have requested to maintain their title and as they do not want to be labeled "Dai" to avoid social stigmatization.
2. The levels of midwives (midwife, CMW, LHV, nurse mid-

wife) need to be clarified and trainings adapted for each. This will also help better track the number of midwives in the country.

3. Quality midwifery training is only possible with a competency-based curriculum. Therefore, the criteria of a training site should include an optimum number of obstetric cases.
4. The capacity of midwifery sch ools for quality training varies from province to province, within provinces, and by public and private sector. This variation demonstrates a need for standardization.
5. The capacity of the Nursing Examination Boards (NEBs) needs to be improved to appropriately evaluate the knowledge and skills of students using the CMW curriculum.
6. Provincial health departments that have mapped exercise for the need for CMWs'—in both quantity and locations in collaboration with districts and LHW program—need to immediately begin midwifery human resource planning with deployment plans.
7. Community midwives perform more effectively and gain credibility in the community when there are strong linkages between health facilities, LHWs, vaccinators and traditional birth attendants (TBAs).
8. If support structures, such as emergency transport systems and 24 hours a day, seven da ys a week, fully functional health facilities are not available, CMWs cannot be effective in averting death.
9. Integrated monitoring systems for CMWs field facilitate accountability and ensure quality performance.

Recommendations

1. Given the varying roles and re sponsibilities of health personnel, the Pakistan Nursing Council should be more inclusively renamed the Pakistan Nursing and Midwifery Council. The Nursing Act should be re vised with tools to ensure strict adherence to standards of midwifery education and practice.
2. The capacity of Nursing Exam ination Boards should be enhanced to assure valid and reliable testing of the knowledge and skills of CMWs.
3. Provincial health authorities should develop the following:
   - A five year CMW recruitment plan based on an objective needs assessment of the targeted communities and training capacity of the institutions involved.
   - CMW student identification and selection process in accordance with the selection criteria and binding by bond for service. Overlapping geographic areas must be checked to avoid wasting human resources.
   - Deployment plans made available before the CMW training is completed for effective absorption of trained CMWs and to avoid investment wastage.
   - A continuing education plan for CMW through on job training/supervision.
   - A career structure for midwives in each of the four categories.
4. The National MNCH Program should develop comprehensive guidelines for CMWs practicing at the community level. These guidelines should include material on how to stabilize emergency cases before referral, referral guidelines, and information about who will accompany emergency cases etc.
5. Practical hands-on training at the peripheral health facilities, and learning in community settings for three to six months, should be an integral and required part of the training program without which the NEBs should not allow CMWs to take their final examination. Standard protocols and guidelines to select peripheral health facilities and the number of CMWs allocated to each selected health facility should be prepared and implemented so that each CMW gets a fair chance to access hands-on training. LHWs working in the catchment of area of these peripheral health facilities should also be attached with these CMWs during this hands-on training period and LHWs should accompany CMWs during home visits.
6. After graduation and before deployment, each graduated CMW should undergo an internship program for six months at the designated health facilities. Standard protocols and guidelines should be developed for trainers and the health facilities
7. CMWs' performance should be tracked by adding a new module to the existing District Health Information System (DHIS) system for a comprehensive picture of MNCH services.
8. To improve the availability of accessible maternal and neonatal services, CMWs should establish well-equipped birthing stations either in their own homes or within their geographic areas.
9. Monitoring tools and instruments for the monitoring of CMWs at the community level should be developed and field tested before implementation.
10. Code of conduct and regula tory mechanisms for midwifery practice should be finalized to protect the SBA and the women she serves.

Above: CMW Handing Baby to Mother

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BUILDING AN AGENDA FOR NEWBORN AND CHILD HEALTH RESEARCH IN PAIMAN: ISSUES AND CHALLENGES

Reducing maternal and child deaths are major targets for the Millennium Development Goals and much effort has been expended in reaching the reduction targets by 2015. Recent data indicate that progress has been made, although it remains unchanged. There has been 34% decline in maternal mortality from the levels of 1990, but a mere eleven countries including Afghanistan, Bangladesh, the Democratic Republic of the Congo, Ethiopia, India, Indonesia, Kenya, Nigeria, Pakistan, Sudan, and the United Republic of Tanzania account for 65% of all global maternal deaths. The recent Pakistan Demographic and Health Survey 2006-7 also underscore the high rates of maternal and child mortality in Pakistan with almost no reduction in newborn mortality over the last two decades. Currently of an estimated 450,000 under 5 child deaths annually in Pakistan, 57% occur within the newborn period, the vast majority within the first few days of life (Figure 1). While poor spending on health and education remain a major factor associated with the lack of progress in MNCH in Pakistan, other important determinants of poor maternal, newborn and child outcomes include undernutrition and micronutrient deficiencies, widely recognized as being associated with almost a third of child deaths in Pakistan.

The Pakistan Initiative for Mothers and Newborns (PAIMAN) project focused on developing and implementing evidence based interventions to address the continuum of care for MNCH. The continuum of care is firmly based on foundations of human rights and gender equity with the premise that all women should have access to reproductive health choices and care during pregnancy and childbirth, and all children should have every opportunity to grow into children who survive and thrive. A principal focus of PAIMAN was the implementation of evidence based interventions and the Aga Khan University was charged with developing a meaningful research agenda. The research agenda was develop on three key principles

- Tackling the major killers of newborns and children and determinants thereof
- Promotion of evidence-based interventions which could be delivered at scale, and
- Targeting the most vulnerable sections of the population

As much as possible, the focus was on tackling major categories of disorders and working in effectiveness settings (i.e. public or private sector providers in district health systems). The projects were conceived to either work with the existing public sector programs, notably the National Program for Family Planning and Primary Care (the LHW program), health department staff as well as with private sector care providers (traditional birth attendants, community health workers and family physicians). The fundamental basis for selection of areas for interventions was disease burden. Figure 2 details the major causes of death among children under 5 in Pakistan. Five major disorders (birth asphyxia, neonatal sepsis, prematurity/LBW, diarrhea and pneumonia) account for almost 80% of all under 5 child deaths in Pakistan. We developed an intervention strategy based on scaling up preventive and therapeutic strategies as appropriate and Table 1 lists the projects with the respective interventions, research questions and areas of focus. These projects were distributed in various PAIMAN districts thus representing broad rural and semi-urban populations of Pakistan Figure 3. In addition, three specific nutrition related projects were developed to answer key questions related to maternal and child undernutrition and micronutrient deficiencies. The key areas of research and potential impact on policy are listed below;

A- Studies on Maternal Health & Immediate Newborn Care

i. Vitamin A Newborn Supplementation Trial

Title:

Evaluation of the effectiveness of Vitamin A Supplementation (VAS) as part of a neonatal post-partum care package in rural Pakistan on infant morbidity & mortality

The goal of the Pakistan Initiative for Mothers and Newborns (PAIMAN) was to reduce maternal, newborn and child mortality in Pakistan. The project worked through viable and evidence-based interventions and capacity building of existing programs and structures within health systems and communities to ensure improvements and supportive linkages in the continuum of health care for women from the home to the hospital. PAIMAN was implemented in 24 districts of Pakistan from 2004-2010 and reached 34 million people.

Location(s): The project was carried out at Sukkur District (and adjacent area Rohri) and Jhelum District, Pakistan

Population covered: The total population of both districts was 1,912,850 and District Sukkur and District Jehlum have population of 917,756 and 995,094 respectively. 10, 000 children were enrolled in the study.

Study duration: The project started in January 2007 and completed in March 2010.

Brief Description& Preliminary findings:
This trial was a community based double blinded randomized placebo controlled trial and results are currently being analyzed. The project aimed to evaluate the impact of a community-based neonatal Vitamin A supplementation program on the morbidity and mortality in newborns and young infants (1-6 months of age) when administered at community level. The Lady Health Workers (LHWs) of national program randomly recruited pregnant women in last trimester and newborn infants of these mothers were provided 50,000 IU of Vitamin A or placebo within 72 hours of birth. The infants were of birth. There were no adverse effects and acceptance was universal. Preliminary data indicate that this intervention, if effective, can be readily delivered by LHWs and can be used to promote early post-natal visits. These study outcome data or morbidity and mortality will be shared in Nov 2010.

ii. Maternal and Infant Vitamin D Supplementation Trial

Title:
Evaluation of effectiveness of Vitamin D supplementation to pregnant women and their infants

Location(s):
The project was carried out at Jhelum District, Pakistan

Population covered:
The study area population is 180, 000

Study duration:
The project started in 2009 and first phase was completed in September 2010. Second phase will be completed in June 2010.

Brief Description:
The project aims to evaluate the impact of vitamin D supplementation in pregnant women in reduction of complications during pregnancy such as pre-eclampsia and hypertension,still birth rates, prematurity, Low Birth Weight and early neonatal seizures. Additionally, project intends to evaluate the pattern of growth, morbidities and vitamin D deficiencyof their infants during first six months of life. The study is a community based; individually randomized placebo controlled blinded trial. After baseline screening, the pregnant women were randomly allocated into two groups. One group was given placebo and other group was given 4000IU of Vitamin D. These women were followed for wellbeing and complications of preganacy. Baseline and endline bio-chemical assessment was also done. The infant of these women will also be followed for neonatal wellbeing including birth weight. Baseline and endline bio-chemical assessment will also be done in neonates as well. Preliminary data from the baseline assessment indicate that prevalence rates of clear and intermediate deficiency of vitamin D exceeds 70% of the pregnant population. There are also no clear associations with dietary intake or other risk factors and hence the importance of this micronutrient in the contest of women of reproductive age in Pakistan. These have implications for nutrition policy in Pakistan.

iii. Prolonged labor and birth asphyxia study

Title:
Improved recognition of and responses to Prolonged Labor and Birth Asphyxia (PLBA)

Location(s):
The project was carried out at Matiari and Jhelum Districts, Pakistan

Population covered:
The women of reproductive age (15-49 years) who delivered in 2007 in the study area, elder women (> 49 years < 70 years) who were potentially influential in terms of childbearing beliefs and practices in families and traditional birth attendants who were working in study area

Study duration:
The project started in March 2009 andcompleted in February 2010.

Brief Description:
The aim of the study was to study the association of prolonged labour and response thereof to Birth Asphyxia. Additional aims were to identify the path of survival by recognition of the problem to the decision to seek care and the avoidable risk factors for neonatal asphyxia in a low income setting where studies of risk factors have not previously been reported. This study further enabled us to describe cultural norms pertaining to Prolong Labor and Birth Asphyxia and plan the process of problem recognition and response to Prolong Labor and Birth Asphyxia, examining the relationships between cultural norms, individual health beliefs, and personal experience of women and caregivers with Prolong Labor and Birth Asphyxia. The findings of this study will be applied to recommend community-based strategies focusing on improved birth preparedness and complication readiness, including prompt referral.

B - Neonatal Health and Survival studies

i. Neonatal Chlorhexidine cord application and hand washing promotion trial

Title:
Topical application of Chlorhexidine to the umbilical cord for prevention of omphalitis and neonatal mortality in rural district of Pakistan: A community based, cluster-randomized controlledtrial

Location(s):
The project was carried out at Dadu District, Pakistan

Population covered:
The population of study area was 314,009 and we recruited almost 10, 000 newborns.

Study duration:
This cluster randomized trial started in Jan 2008 and was completed in March 2010.

Brief Description:
The project aimed to estimate the independent effect of 4% Chlorhexidine solution application to cord stump, and hand washing with soap by mothers of newborns for two weeks

after birth in reducing Omphalitis in neonates compared to routine cord care in Dadu the predominant rural district of Sindh,Pakistan. This was four celled cluster randomized controlled trial in close to 200 villages. The interventions were delivered through traditional birth attendants who were provided clean delivery kits with specific commodities and training as per allocation. The TBAs applied chlorhexidine on umbilical cord once after delivery and thereafter taught the mother/family member the application procedure. Additional counseling to promote hand washing with soap especially before touching the newborn, was provided as per cluster allocation. The newborns were followed up to one month for incidence of omphalitis, morbidities and mortality by community health worker. The results from this study are now available and indicate an impressive (50%) reduction in rates of omphalitis and also a consequent reduction in neonatal mortality by almost 40%. These findings have great implications for the potential scaling up of Clean Delivery Kits, and the use of such interventions in home settings using any type of health care provider.

C - Child Health and Nutrition related studies

i. Prevention and management of moderate to severe acute malnutrition in Community settings

Title:
Community-based management of acute moderate and severe acute malnutrition (SAM) in rural Pakistan

Location(s):
The project was carried out at Dadu District and Khairpur District, Pakistan

Population covered:
The study area population was 60,268. The target population of under 3 years of children was 4520 and 900 malnourished children were recruited in the study. This is the largest study to-date of SAM in community settings in Pakistan.

Study duration:
The project started in Jan 2009 and concluded in September 2010

Brief Description:
The project aimed to assess the acceptability, feasibility and effectiveness of Nutributter and fortified supplementary food (RUTF) in the treatment of moderate and severe malnutrition in children aged 6 months to three years in community settings. The commodities for this step-wedged designed trial were provided through the generous support of Nutriset (France). The project also compared the impact of merely providing a nutrition education package to the caretakers in control populations as well, and evaluated its acceptance and inclusion in feeding practices for at-risk or affected children. The preliminary findings of the study demonstrate high rates of acceptance and success of nutrition rehabilitation in community settings in Pakistan through community health workers and low mortality rates. This study also provided the platform for the inclusion of management strategies for SAM in the flood response in Sindh over the last few months.

ii. Community-based managementof severe pneumonia in children

Title:
Community case management of Severe Pneumonia with Oral Amoxicillin in children 2-59 months of age in Hala and Matiari Districts, Pakistan

Location(s):
The project was carried out at Matiari and Hala District, Pakistan

Population covered:
Study area population was 0.47 million. Project target population was 89173 under-five children.

Duration:
The project started in July 2007 and completed in May 2010

Brief Description:
This study was a multi-center, two-arm un-blinded cluster randomized effectiveness trial which took place in Hala and Matiari districts, Pakistan to determine the impact of asking LHWs(Lady Health Workers) to diagnose and manage severe pneumonia with oral amoxicillin in domiciliary setting. The study has demonstrated the feasibility of using the strategy and low mortality when the strategy was deployed effectively. LHWs were able to implement the strategy for case management of severe pneumonia as successfully as a host of care providers using second and third line antibiotics and injectables. These findings, in association with other findings from the sister part of the project in Haripur will lead to a major change in policy for the recognition and management of pneumonia in rural Pakistan.

iii. Scaling up diarrhea prevention and management though "Diarrhea Kits" in rural Pakistan

Title:
A Community based introduction and evaluation of the impact of social marketing of a Diarrhea Management Pack (comprising Low Osmolality ORS, Zinc Tablets, Water purification tablets and Pictorial chart), on Childhood Diarrhea

Location(s):
The project was carried out at Khairpur District and Jhelum District, Pakistan

Population covered:
160, 000

Study duration:
The project started in February 2009 and completed in September 2010

Brief Description: This study aimed to evaluate effectiveness of a "Diarrhea Package" (comprising low osmolality ORS, Zinc, water purification tablets and pictorial instruction sheet) in reduction of diarrhea and its related morbidity and mortality in children less than 5 years of age; and also to look at the acceptance of "Diarrhea Package" by the community for management of diarrhea in their children. The diarrhea pack was distributed to households with diarrhea cases through community health workers and also sold through Pharmacies and promoted to local family physicians.

D- Studies Evaluating Newborn and Child Health Delivery Platforms

i. Post-partum visitation promotion through LHW training and supervision

Title:
Impact evaluation of Postpartum Care Package andearly postpartum visit on newborn survival: A cluster-randomized controlled trial in District Sukkur, Pakistan

Location(s):
The project was carried out at Sukkur District, Pakistan

Population covered:
917,756

Study duration:
The project started in August 2007 and completed in April 2010

Brief Description:
The project aimed to develop and implement innovative intervention packages (in various combinations) for community-level health care workers (TBAs, LHWs, Midwives) aimed at reducing postpartum maternal and early neonatal mortality and morbidity; and also to improve early postpartum and newborn care through timely recognition and referral of complications by early postpartum visit of lady health workers. This was cluster randomized controlled trial intended to evaluate the impact of early postpartum visit by lady health worker on neonatal complications and mortality. The project reveals many barriers to effective post-natal visitation by LHWs, the need for proper monitoring and evaluation. This will yield useful information for future policy in this regards.

ii. Short course IMNCI training of health staff

Title:
Comparison of short duration (7 days) IMNCI training with standard (11 days) IMNCItraining of private and public sector health care providers

Location(s):
Health care staff from various health care facilities of districts Rawalpindi and Khairpur/Sukkur of Pakistan

Population covered: 1
00 different cadres of health care providers from private and public sectors.

Study duration:
The project started in Aug 2009 and completed in September 2010

Brief Description:
This project primarily aims to evaluate the effectiveness of 7-day IMNCI training versus the standard, 11-day IMNCI training. Knowledge and clinical assessments were being done with the help of MCQs and Video clips based tools both at the beginning and at the end of training (Pre and Post-test). These both group were evaluated after six months of training. The objectives were also to assess the costs and impact of these training approaches on provider behaviors and the preliminary data suggest that both approaches led to comparable retention and gains among physicians.

Summary

The research portfolio outlined above provides a range of studies, mostly operational research targeted to improving newborn and child outcomes in Pakistan. Despite a large portfolio and limited time in the expansion phase, AKU was able to conclude these studies within the life span of the PAIMAN project. When concluded and analyzed, these projects will guide several key aspects of the MNCH and LHW programs in Pakistan and also inform nutrition policy in the future.

Category of Newborn and Child Health	Research Project Title	Type of study	Health Worker(s) Cadres engaged	Primary outcomes evaluated
Newborn Nutrition	Vitamin A Supplementation project	Blinded cluster randomized controlled trial	LHWs	Morbidity and Mortality in Newborns and Young infants
Newborn Nutrition	Vitamin D Supplementation Project	Individually randomized placebo controlled blinded trial	LHVs CHWs	Still birth rates, Prematurity, Low Birth Weight and Neonatal seizures
Newborn Health & Survival	Neonatal Chlorhexidinecord application and hand washing trial	Cluster Randomized controlled trial	CHWs TBAs	Omphalitis and Neonatal morbidity and mortality
Child Nutrition and Survival	Prevention and management of moderate and severe acute malnutrition	Step-wedge randomized trial	CHWs	Impact of RUSF (Nutributter) and RUTF on Moderate and Severe Malnutrition
Child Survival	Community-based management of severe pneumonia in children	Cluster randomized controlled trial	LHWs	Pneumonia related morbidity and mortality
Child Survival	Scaling up diarrhea management kits in rural Pakistan	Cluster Randomized controlled trial	CHWs Physicians (both Public and Private)	Diarrhea related morbidity and mortality

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PAIMAN Policy Brief

Strengthening Health Information Systems

Supporting Evidence-based Maternal, Neonatal, Child Health and Family Planning Interventions

Background

The Pakistan Initiative for Mothers and Newborns (PAIMAN) project promoted monitoring and evaluation (M&E) for programmatic problem solving, based on information to manage services and resources effectively and efficiently. The routine institution-based health information system (RHIS) is one of the data sources for monitoring PAIMAN project objectives. It provides information on a monthly basis for selected project indicators such as antenatal care (ANC) and postnatal care (PNC) coverage and tetanus toxoid (TT) immunization coverage in pregnant mothers. However, various studies have documented that RHIS performance defined as improved data quality and continuous use was low. Therefore, one of the key PAIMAN health system interventions was to strengthen RHIS.

In 2005-2006, the National Health Information Resource Center (NHIRC) of the Ministry of Health (MOH), with funding of the Japanese International Cooperation Agency (JICA), and with technical assistance by a consortium of the Japanese firm Social Services Consulting (SSC) and JSI Research & Training Institute, transformed the existing health management information system (HMIS) for primary care facilities into a District Health Information System (DHIS). The new DHIS incorporates data from both primary and secondary health facilities, focusing on district needs, and incorporates new indicators on maternal., neonatal, and child health (MNCH). Prior to DHIS, under the existing health management information system (HMIS), there was no mechanism to collect routine data on maternal and neonatal health services from hospitals. The design and piloting of DHIS was finalized in early 2007.

PAIMAN needed the routine information system to provide data for monitoring the MNCH services, so the project committed early on to scale-up DHIS in all its districts. While waiting for DHIS training for district facility staff, PAIMAN developed a provisional data collection system for MNCH data, called "Routine Monitoring of Output Indicators" (RMOI), which used HMIS data as well as hospital data and which were collected by PAIMAN staff.

Interventions

- Developed Routine Monitoring of Output Indicators (RMOI) based on DHIS for MNCH services for PAIMAN districts.
- Improved the DHIS software data entry and analysis modules
- Scaled up DHIS in 24 PAIMAN districts
- Increased capacity of district management (DHMTs) and facility staff in using DHIS information

Achievements and Impact

Ultimate impact: use of information

How the new DHIS has contributed to improving maternal, neonatal and child health service delivery is best illustrated by a case study on use of information in the district of Upper Dir. The case study was developed under the Health Metrics Network Technical Support Partnership, a Gates funded project on HIS strengthening. After DHIS was implemented in Upper Dir, th e DHMT analyzed the newly designed DHIS reports and found that only 12% of women delivered at health facilities. During the first two months of 2007 only 5 obstetric complication cases were admitted and 4 cesarean sections performed. Based on these findings several interventions were implemented with PAIMAN

The goal of the Pakistan Initiative for Mothers and Newborns (PAIMAN) was to reduce maternal, newborn and child mortality in Pakistan. The project worked through viable and evidence-based interventions and capacity building of existing programs and structures within health systems and communities to ensure improvements and supportive linkages in the continuum of health care for women from the home to the hospital. PAIMAN was implemented in 24 districts of Pakistan from 2004-2010 and reached 34 million people.

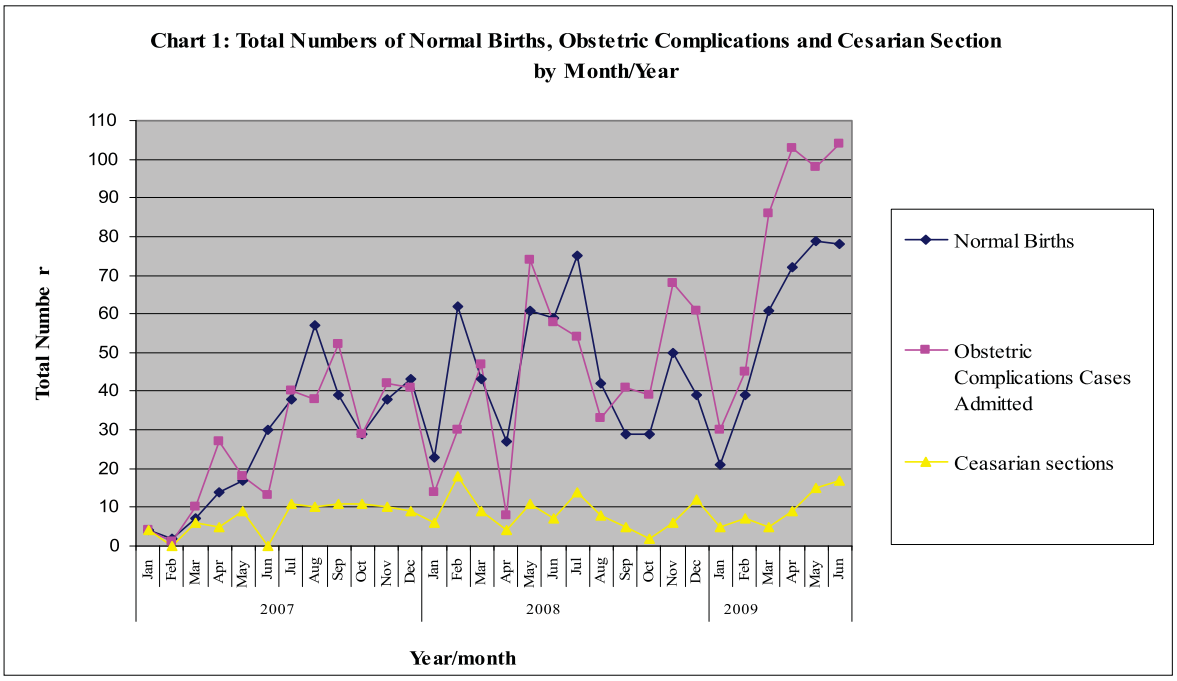
funding to improve both demand and offer of obstetric services.

As a result of these interventions, dramatic increases in use of childbirth delivery services occurred during the period 2007-09. Chart 1 shows trends in normal births, births with obstetric complications, and Caesarian-sections at the District Headquarters Hospital (DHQH) in Upper Dir, from January 2007 through mid-2009. For example, the number of normal births rose from near zero to almost 80 per month over the period, while obstetric complications admitted (and managed successfully) increased from near zero to over 100 per month. The number of C-sections rose initially to around 10 per month and has been relatively stable since then, with recent increases up to near 20 per month. Improvements continued even with military conflict against insurgents in Upper Dir in early 2009.

non-PAIMAN districts. These include target-setting guidelines and trainings, data display charts, monitoring checklists for DHIS, guidelines for monthly review meetings etc. The current DHS implementation status nationwide is presented in the table below.

Improvement in DHIS software data entry and analysis

The eDHIS software developed in 2006-07 through JICA support was made functional by debugging, installation, training, and through PAIMAN support in its project districts. PAIMAN's assistance to the districts has rebuild their confidence in eDHIS as a viable piece of software that can fulfill their future needs. eDHIS has been implemented in some 56 districts and implementation in FATA is in process.



Scaling up DHIS

PAIMAN has made a substantial contribution to the scaling up of DHIS. A total of 4,872 district and health facility staff were trained on DHIS data collection and reporting in collaboration with NHIRC during 2007-2009 from all 24 PAIMAN districts. At present, DHIS is successfully functioning in all PAIMAN districts and in nearly half (69) of all districts across the country with PHC facilities and secondary hospitals regularly submitting their monthly activity reports to the district health offices, where the data are computerized, processed and management feedback generated. All upward data communication is done electronically through dial-up connections. The Punjab province, where DHIS is in practice in all 36 districts, has adopted and implemented the DHIS support package interventions in all

Promoting information use

In order to improve skills in use of DHIS information, 236 district health managers in PAIMAN districts were trained in use of information for evidence-based decision-making, based on training materials developed by the PAIMAN team and from MEASURE Evaluation. Various interventions were implemented to promote the culture of using information including:

- holding target-setting meetings with DHMT managers at the EDO(H) office;
- printing and disseminating DHIS data display charts for distribution to all health facilities;
- using DHIS information during monthly review meetings.

Table 1: DHS implementation status nationwide

Province	Districts /Agencies/FR Total	# Districts/Agencies/FR trained		#Districts/Agencies/FR reporting		# Districts /Agencies/FR using eDHIS
		PAIMAN	Other	PAIMAN	Other	
AJK	10	2	--	2	--	2
Balochistan	30	6	9	6	0	6
Fata	17	--	13	--	13	0
Gilgit Baltistan	7	--	--	--	--	
KPK	24	7	1	7	1	8
Punjab	36	6	30	6	30	36
Sindh	23	3	5	3	1	4
TOTAL	**142**	**24**	**64**	**24**	**45**	**56**

Lessons Learned and Challenges

DHIS, in the districts where it was implemented, provided valuable information for monitoring progress in MNCH program interventions, for discussing causes of under-performance, for making early management decisions to solve problems, and for correcting courses of action as necessary. Using a collaborative decision-making process was also key to success. Improvements were seen within a short period of time and have been sustained—indeed have continued to improve—up to the present time.

Health workers at THQ Hospital in Gujarkhan now have access to and are trained to effectively use electronic health information systems.

Even prior to DHIS implementation, the RMOI system showed that it was not necessary to wait until full DHIS implementation to start using available information for MNCH and family planning program decision making. It showed that a data collection system in itself is not sufficient to have information used for better program decisions. It was important to simultaneously implement interventions to promote the culture of information.

Scaling up DHIS amidst of insecurity and civil strife has been a challenge for all stakeholders involved and will continue to be when scaling up to the remaining districts throughout Pakistan.

Recommendations

In light of these findings, achievements, and continuing challenges, several policy recommendations can be made to further strengthen the DHIS in support of the NMNCH and family planning programs.

The most important recommendation to the Federal Ministry of Health as well as the Provincial Health Departments is to scale up DHIS nationwide in the shortest time possible. As long as two or more parallel health information systems co-exist (DHIS and HMIS/FLCF), data analysis and interpretation is extremely difficult at a time where it is extremely important to measure progress towards reaching the targets for MDGs 3, 4, 5, and 6. DHIS will enable MNCH and FP program monitoring at both federal and provincial levels, but it is also a tool for district managers and care providers to manage the health services and deliver quality care.

To streamline data reporting and processing across the country, a standardized eDHIS application needs to be implemented nationwide. As for maintaining and trouble shooting the software, it is recommended to outsource these functions to the private sector. Sufficient local capacity exists not only to maintain and troubleshoot the software but also to further develop its new components; to integrate it with other routine and non-routine reporting systems; and to ensure data analysis and presentation.

We recommend that prior to implementing DHIS in the remaining districts a PRISM assessment of the existing HMIS be undertaken so as to better focus training of district managers and care providers to address existing issues.

Finally, serious consideration needs to be given to the development of a policy and regulatory framework to ensure private sector reporting, at least for a number of key MNCH and FP indicators. Currently neither legal obligation nor established incentives exist for private care providers to report any data. In this regard an opportunity in near future will be available in the province of Punjab where the Health Commission bill is on the table in the provincial assembly for regulation of the private sector.

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PAIMAN Policy Brief

Decentralization and Health System Strengthening of District Health Authorities

Background

Since Pakistan's 2001 Local Governance Ordinance devolved health sector decision-making to local authorities, the health system has faced distinct challenges in ensuring that choices exercised by local officials are harmonious with district, provincial and national-level objectives.

One of PAIMAN's goals was to build the capacity of the existing health system and fostering a community-based approach to ensure a continuum of care for mothers and newborns.

PAIMAN used viable and evidence-based interventions to build the capacity of existing programs and structures within health systems and communities. PAIMAN also helped the health system tackle three distinct challenges. First is the continually evolving balancing act between the range of choice exercised by local officials to tailor services to local needs and priorities (what can be termed "decision space") with larger health systems goals, such as concerns for equity or specific national policies. Second is an ongoing need to strengthen the institutional capacities required to enable local decision-makers to make choices that will result in improved health sector performance. Finally, health sector and other local governmental decision-makers' districts must find ways work effectively with elected officials to whom local health systems are, in part, accountable. In short, the devolution of authority and responsibility to districts in Pakistan has offered renewed opportunities—and created new challenges to—strengthening district health system for the delivery of quality health services that are accessible, efficient and equitable.

Achievements

- *Decision Space*
  The Districts receiving PAIMAN support had high levels of decision-making space between 2006 and 2009. Local officials are increasingly inclined and able to take advantage of their health sector authorities under decentralization.
- *Institutional Capacities*
  Districts are better-equipped to make choices that improve local health sector performance after PAIMAN's institutional strengthening support.
- *Local Accountability*
  Despite formal changes that have reduced local accountability in PAIMAN supported districts, local accountability for health sector decisions has remained at similar levels.
- *Synergies between decision space, institutional capacities and accountability*
  PAIMAN interventions at the institutional level and at the individual level both demonstrated a positive and synergistic relationship between decision space, institutional capacities and accountability.

Interventions

Health Systems Strengthening (HSS)

The PAIMAN project sought to resolve the challenges of decentralized decision-making and implemented a variety of capacity-building initiatives to equip district-level decision-makers - including health administrators, other local government administrators, and elected officials - with the necessary tools to make decisions conducive to better health systems performance. PAIMAN's interventions included

- training workshops in such areas as health planning, performance target-setting, leadership, use of health

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information, financial management, logistics, supportive supervision and training;
- Revived and supported District Health Management Teams (DHMTs) in which government and civil society members oversee delivery of health services together;
- Provided annual technical assistance to districts in the health sector planning cycle process.

Results

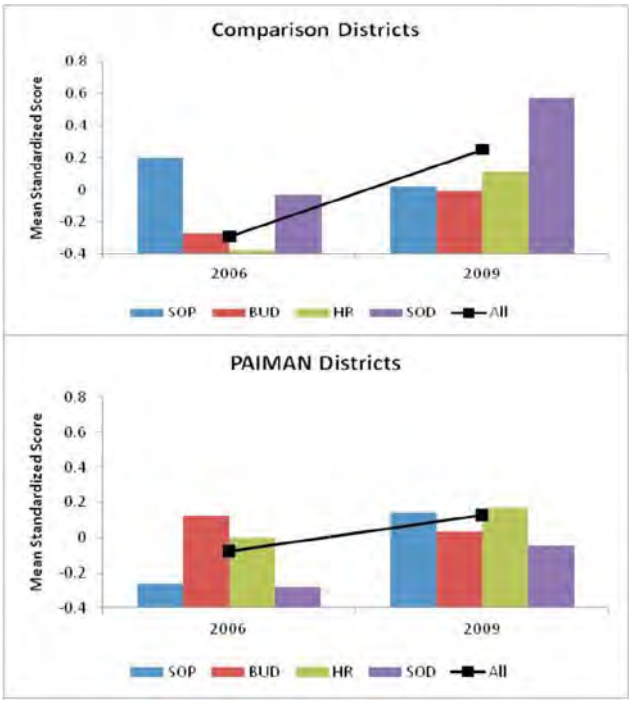
Health Systems Strengthening

PAIMAN led efforts to assess the impact of health systems strengthening (HSS) initiatives on local decision-making processes. Structured interviews with a variety of district-level decision-makers in the health sector, local government, and citizen-elected officials (district *Nazims*) were conducted twice (2006 and 2009) to quantify and document the degree of, as well as changes in, decision space, institutional capacities, and local accountability of Pakistan's decentralized health sector service delivery. To better understand the role that the PAIMAN intervention played in these three dimensions of decentralization, interviews were conducted in the 10 districts that received PAIMAN capacity-building support and three comparison districts that did not. The following findings emerged:

Decision space

- The degree of local decision space has grown in Pakistan, suggesting that local officials are increasingly inclined and able to take advantage of their health sector authorities under decentralization. As illustrated in Figure 1, in both the 10 PAIMAN districts and three comparison districts, respondents are currently taking wider advantage of their authorities across a variety of health functions compared to previous years.

Fig. 1: Growth of decision space between 2006 and 2009*



*Health functions analyzed: Strategic and Operational Planning (SOP); Budgeting (BUD); Human Resources (HR); Service Organization and Delivery (SOD); unweighted average (ALL)

Institutional Capacities

- Improved institutional capacities in districts receiving PAIMAN health systems strengthening interventions indicate that officials in those districts are better-equipped to make choices that improve local health sector performance. This was demonstrated by :
  - An increase in the use of PAIMAN initiated DHMTs for collective decision-making and increased participation of stakeholders. Higher levels of technical and administrative skill transfer among health sector officials—in areas such as procurement, preparing contracts and logistics—in PAIMAN intervention districts than in comparison districts (see **Table 1**). In short, these findings suggest that local decision-makers in PAIMAN districts both within and outside the health sector appear to be making more use of processes that are considered to be consistent with improved performance.

Table 1: Skills transfer among health sector officials

Districts	Strategic / operational planning		Preparing contracts		Procurement		Forecasting	
	2006	2009	2006	2009	2006	2009	2006	2009
Comparison	33%	27%	7%	7%	33%	27%	27%	33%
PAIMAN	44%	48%	12%	23%	16%	33%	12%	41%
Total	40%	40%	10%	17%	23%	31%	18%	38%

Local Accountability

- **Local accountability for health-sector decisions has sustained at similar levels in PAIMAN districts despite recent changes that have diminished certain authorities of district *Nazims*** (the locally elected head of the district). Formal changes which reduced the authority of district *Nazims* and other civil society bodies in 2008 were expected to markedly reduce their role in health decision making. However, the health system strengthening assessment study found that account-

ability has remained at similar levels in PAIMAN districts since 2006. Qualitative data suggest that district *Nazims* continue to have a voice in district-level decision-making, are kept in the loop for sectoral decisions, and perceive decision-making as generally transparent and collective. One district *Nazim* described his experience with health sector decision-making:

"In our district, we always took responsibility as a team. In case of the health sector, the Executive District Officers for Health and Finance & Planning always coordinated and cooperated with me. We had monthly meetings like the DHMT and District Health Committees in which we shared the progress of the health sector in our district and through mutual consensus took decisions. Even hiring of new staff was done with mutual understanding."

Qualitative evidence also suggested that in districts where the *Nazim* is more engaged in the development process, other team members also show more diligence and perform better.

Synergies between decision space, institutional capacities and accountability

- PAIMAN interventions led to **strong positive relationships among decision space, institutional capacities ,and accountability**. The health system strengthening assessment study found that PAIMAN initiatives which focused on one dimension, strengthened institutional capacities of both health and non-health sector officials and were likely to extend to other dimensions of decentralized decision-making: widening use of decision space and increasing accountability to local elected officials. PAIMAN's training activities for capacity strengthening also demonstrated **positive relationships between individual-level health sector training, institutional capacities and decision space.** This finding suggests that PAIMAN project interventions have positively supported the advancement of health sector decentralization.

Challenges

While many of the above-cited achievements are encouraging for Pakistan's health sector as a whole and PAIMAN districts in particular, there are many continuing challenges.

- **Decision space in the specific function of budgeting has not widened and budget-related institutional capacities have declined.** District-level officials feel that "one-line" budgetary sanctions by the provincial governments often do not meet the needs of districts, as this process can be politicized with preference given to certain districts over others. Greater flexibility in budgeting and planning was universally cited as survey respondents' highest priority in each round of the survey.

- Although institutional capacities in PAIMAN have increased, not all **officials in the districts have the appropriate degree of decision space** especially in terms of budgetary flexibility and priority setting.
- **Resource capacity constraints continue to abound** at the district level, particularly with a **shortage of human resources**. These constraints will continue to create impediments for strengthening overall institutional capacities.
- **Local support for health sector activities in PAIMAN districts was reported to have decreased** from 2006/2007 to 2009. This could be due to the presence of PAIMAN funding which may be motivating provincial governments to reduce allocations to those districts. Anticipating this "substitution effect," sustainability of funding needs to be addressed as the project ends.
- **Some provinces report wider use of decision space, higher capacities, and more accountability than other provinces.** Respondents from districts in Punjab generally reported the widest decision space and strongest institutional capacities/accountability, while those from NWFP generally reported the lowest levels of each. Though it is difficult to know what factors are driving these differences, they suggest the need to tailor technical assistance in health sector decentralization to the differences

experienced in each individual province.

Lessons Learned and Policy Recommendations

In light of the study findings, achievements made, and continuing challenges, four key lessons learned feed directly into policy recommendations aimed at further strengthening decentralized health sector decision-making:

- Evidence of synergies between the degree of decision space, strength of institutional capacities, and existence of local accountability suggest that **strengthening institutional capacities may have spillover effects on other dimensions and improve decentralized decision-making more generally**. **This successful approach to institutional strengthening should be scaled up to have a wider impact on districts throughout Pakistan.**

- In addition to continued capacity building of local health administrators and officials, **strengthening local accountability may be an entry point to sustaining health systems strengthening gains made by the project.** With district *Nazims* reportedly continuing to feel involved in health sector decision-making but local support for health sector activities declining, it may be an opportune time to **develop new approaches for forging stronger relationships with local elected officials and civil society as part of a sustainability strategy**. One example of such a relationship could be to expand the role of DHMTs to more actively monitor delivery of health services, by certifying the attendance of health staff at facilities or approving leave of certain health cadres (functions practiced by health committees similar to DHMTs in other countries).

- Despite encouraging signs related both to PAIMAN interventions and decentralized decision-making, the degree of decentralization in budgeting remains limited and is an area of concern for local decision-makers. **We recommend that budgeting parameters affecting district-level allocations developed by provinces be revised to allow greater local discretion and create transparency, equity and accountability among districts. We also recommend that** district-level decision-makers ensure matching fiscal resources to local health system needs.

- Findings show regional differences in how local decision-makers exercise decision space, have the capacity to make decisions and are held accountable for those decisions. This suggests that **future initiatives need to be tailored to provincial-level realities, conditions, and differences for effective decentralized decision-making**. **In particular, it is recommended that greater capacity building efforts focus on the districts and provinces with the lowest levels of institutional capacity.** It is also worth considering the creation of a forum for local decision-makers from different provinces to come together and share their experiences in decision-making to enable learning from each other.

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PAIMAN Policy Brief

Integrated Obstetric Care: Implementing a Continuum of Care

Background

In Pakistan, only 39 percent [1] of pregnant women have access to skilled care during childbirth. Five percent of these women receive services at the household level while the remaining 34 percent seek skilled care at a health facility. Women who need emergency obstetric care are hampered by a lack of transport facilities, especially in rural areas. The challenges of seeking care are further compounded by the limited number of health facilities providing round-the-clock services, 24 hours a day, seven days a week. Moreover, many facilities are not fully functional and lack the required equipment, supplies, and hu man resources to provide emergency obstetrics care.

Driven by the right to have and promote access and quality health care, PAIMAN developed an integrated obstetric care model to address demand, access, capacity, and quality issues. This integrated obstetric care model is based on a continuum of care that addresses the "three delays" that cause maternal mortality: delay in seeking care , delay in accessing/reaching a health facility, and delay in receiving care at facility. These delays are tackled by increasing demand and better health-seeking practices for maternal, neonatal, and child health (MNCH); ensuring the availability of and access to skilled birth attendants (SBAs) at the community level; strengthening the referral system for obstetric emergencies; improving access to quality care at functional health facilities that are operational 24 hours a day, seven days a week; and a monitoring and reporting system to track MNCH services. These linkages are also strengthened with lady health workers (LHWs) and other community health workers (e.g. vaccinators) to create a support structure for the skilled birth attendants.

This policy brief provides evidence of the effectiveness of the integrated obstetric care model implemented by the PAIMAN project and recommendations for future policy.

Interventions

PAIMAN provided an integrated obstetric care model with the following strategies:

- Linking various community and health facility components for integrated obstetric care.
- Developing a support system for integrated obstetric care.

Achievements and Impact

- Utilization of maternal, newborn and child health services increased from 2007 to 2009. Figure 1 illustrates a 33 percent increase in facility births; a 75 percent increase in women admitted for obstetric complications, and a 40 percent increase in emergency C-sections indicating that comprehensive obstetric services were available.
- There were 60 percent more antenatal care (ANC) check-ups between 2007-2009 and a 54 percent increase in pregnant women receiving two

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or more tetanus toxoid (TT) vaccinations. Similarly, a 10 percent increase in lady health worker (LHW) postnatal visits was observed (Figure 2).

The increase in facility utilization of maternal services is indicative of the combined effect of improved education and community mobilization activities including better involvement of the LHWs, community midwives (CMWs) and traditional birth attendants (TBAs) trained during PAIMAN.

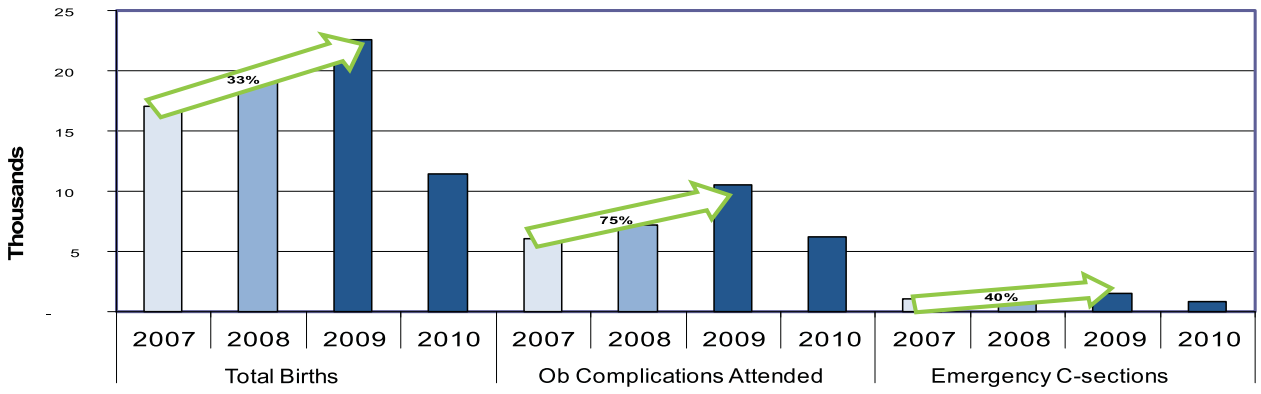
1623 CMWs were enrolled for 18 months skilled base training, out of which, 962 have established their Midwife Homes at the community level. Remaining will graduate in December 2010

1. Linking various health system components for integrated obstetric care

The integrated obstetric care model works to build and strengthen linkages with the community and health facilities. The model aims to connect the different areas for improved health outcomes. The model uses community education and mobilization activities with LHW, CMWs and TBAs at the community level to create demand, and strengthens services with upgraded facilities for basic and comprehensive obstetric care, and improved quality of care of the health facility staff through training at the health facility level.

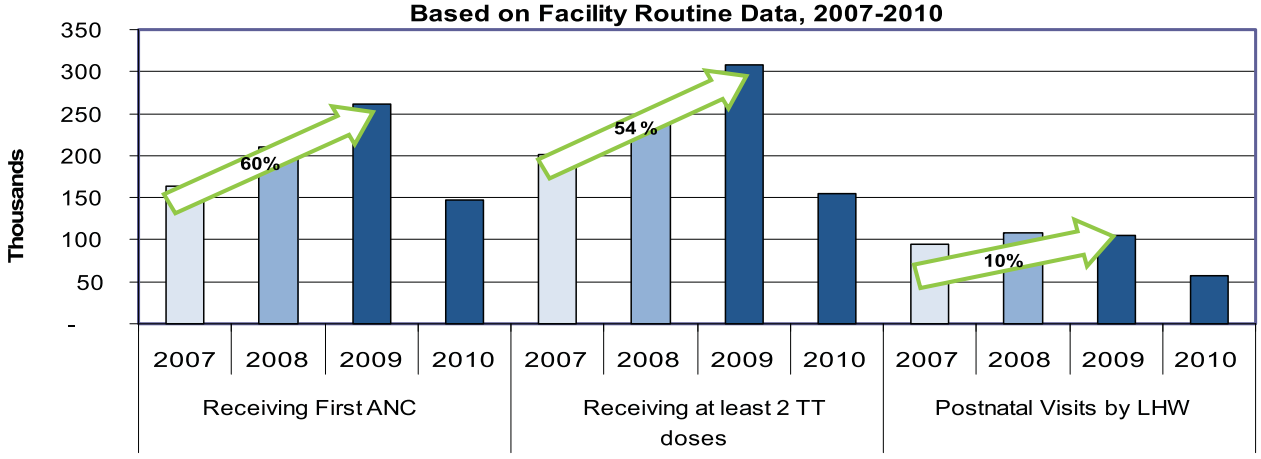
The Partnership Defined Quality (PDQ) approach is one example of PAIMAN's commitment to building linkages with the community. The PDQ process involves providing community members and health facility providers with the skills and systemic support they need to improve health service quality and people's access to these services. The process includes the establishment of Quality Improvement Teams (QITs) in each health facility, where community members discuss what services should be part of the quality of care, what the existing gaps are, based on that definition of quality of care, and how they can be ad-

Figure 1: Obstetric Care Service in Upgraded Health Facilities
PAIMAN Original 10 Districts



Note: 2010 data is January-June only

Figure 2: Key Maternal Services in PAIMAN original 10 Districts
Based on Facility Routine Data, 2007-2010



Note: 2010 data is January-June only

dressed by working in partnership with community and facility staff.

The PAIMAN team developed a comprehensive monitoring and evaluation tool kit to follow whether PDQ is implemented as planned. Results showed an increase in the number of outpatient clients, antenatal care visits, and child immunizations in project districts compared to non-PDQ districts.

2. Support System for Integrated Obstetric Care

Integrated obstetrics care needs a well organized support system to provide round-the-clock services. The following accomplishments were made:

Training

- 2,250 TBAs were trained on clean delivery practices, early recognition of danger signs, and the importance of referrals. This was done as an interim measure until the community midwives became available in each village.
- 11,057 LHWs were trained in communication skills and support group methodology and 6,500 LHWs were provided training on Community Integrated Management of Childhood Illnesses. LHWs play an important role in ANC, prenatal care (PNC), newborn care, referral, and TT vaccination.

Specialist support

Many health facilities did not have obstetricians to provide specialized obstetric emergency care. Multiple strategies were employed to fill the gaps. They included:

- 12 post-graduate trainees were put on rotation schedules from teaching hospitals to district hospitals in order to provide round-the-clock Comprehensive Emergency Obstetric and Newborn Care (CEmONC) services at these health facilities.
- 14 specialist camps were organized in three districts during the last 12 months of PAIMAN. These three-day camps were organized to help foster confidence within the local community for use of health facilities and for mentoring local medical and para-medical staff. Each camp was led by eight to ten senior specialists from tertiary-level hospitals.
- Three specialist staff were posted, on contract, to three hospitals.
- Ten health care providers (HCPs) were sent to teaching hospitals for hands-on training in anesthesia, obstetrics, and blood banking ranging from three to six months.

Logistics

- 79 health facilities (31 CEmONC and 48 Basic Emergency Obstetrics and Newborn Care [BEmONC]) were upgraded to provide both basic and comprehensive obstetric care and support the CMWs. The upgrades included civil works, HCP capacity building, and the provision of standard protocols, equipment, and ambulances.

Information systems

- The outputs from upgraded facilities were tracked using routine monitoring of output indicators (RMOI), demonstrated in Figure 1&2, the "Obstetric Care Services by PAIMAN Upgraded Health Facilities in Ten Original Districts."

Community participation

- LHW health committees have been revitalized for better health-seeking behaviors, management of health services, and accountability. Similarly, local communities are included and involved in improving

quality of care through the Partnership Defined Quality (PDQ) approach process.

Local Transport

- LHW health committees and NGOs organized local transportation and a community revolving fund for emergency obstetric cases. This approach was introduced to reduce barriers to women reaching the hospital in emergencies. Previously there was a lack of transport for women in labor.

Lessons Learned and Challenges

1. The integrated obstetric care model requires a strong foundation with the availability of trained staff at referral health facilities, round-the-clock functioning facilities, and access to emergency transportation in the communities.
2. Community education, mobilization, and participation are essential for increasing and sustaining knowledge and health-seeking behaviors. Engaged communities also facilitate strong linkages with transportation systems and health facilities.
3. Any missing link or gap in the integrated obstetric care model can affect interactions between the community and health facility or services, and can reduce utilization of obstetric care.
4. Collecting and using data routinely to track various integrated obstetric care services coverage helps identify gaps and ameliorating them without delays.
5. PDQ sustainability is only possible if appropriate time is invested in the implementation process, and if quality improvement teams are linked at the community level with LHW health committees and at the district level with District Health Management Teams.

Recommendations

1. The integrated obstetric care model's continuum of care should be made part of health policy.
2. The integrated obstetric care package needs to be scaled-up.
3. The integrated obstetric care package is an excellent example of vertical integration with obstetric care. However, it also needs to be integrated with other child and primary health care services.
4. The National MNCH Program should assure that support systems for health providers (e.g., training, specialist support, information systems, supervision, transport, logistics, and community participation) are in place and functional.
5. The National MNCH Program should fund Obstetrician/Gynecologist (Gyn/Ob) post-graduate students to cover districts where there are limited human resources for CEmONC services.

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Testing the Feasibility of Misoprostol for Prevention of PPH in the Home Setting in Rural Pakistan

Background

The overall focus of PAIMAN was to reduce maternal, neonatal and child mortality in Pakistan. To reduce maternal mortality, PAIMAN focused on an approach of improving home care and stabilizing normal deliveries and improving referrals to better-equipped and upgraded facilities to receive and deal with deliveries requiring emergency care. As part of this effort, an operations research study was carried out by the Population Council to introduce misoprostol to prevent postpartum hemorrhage (PPH) in a home setting, and thereby reduce the risk of maternal mortality from PPH and the need for referral to a facility for the treatment of PPH. Globally, bleeding after childbirth (postpartum hemorrhage) is a major cause of maternal mortality; it accounts for from one quarter to one-third of maternal deaths, and 99 percent of these deaths occur in developing countries to women who rarely receive appropriate care because they give birth outside of a hospital setting.. In Pakistan, where two-thirds of births occur at home and 60 percent of births are assisted by women other than skilled birth attendants, who are unable to treat and control PPH, postpartum hemorrhage is the most common cause of maternal mortality, accounting for 27.2 percent of maternal deaths.

This OR study concentrated on rural areas because the number of women giving birth at home and using the services of an unskilled birth attendant is much higher in rural areas as compared to urban areas (59 percent rural; 35 percent urban). There are a number of documented factors that play into the higher number of rural home deliveries: there are fewer public and private facilities in rural areas and accessing these facilities is more difficult for rural women than their urban counterparts, and other issues (e.g., costs, transportation, communication, etc.). There are almost no skilled providers who will attend to a woman at home, even in an emergency situation, because of accessibility problems. In emergency situations, such as cases of PPH, the difficulties are exacerbated for rural women because of the importance of reaching a health facility quickly.

There are effective uterotonic drugs available for use in the active management of the third stage of labor to prevent PPH; however, most require proper handling and a trained health care provider. One of these drugs, misoprostol, acts as an alternative uterotonic to the widely-used injectable drug oxytocin. Misoprostol has been found to be effective in controlling as well as preventing PPH.. It is inexpensive, comparatively easy to use, and does not require any special conditions for storage. Moreover, its tablet form provides a community health care provider, a traditional birth attendant, and even the just-delivered woman herself and her family members, with the opportunity to easily administer it. However, the World Health Organization clarified its position on misoprostol use in the community to reduce maternal death in 2010, stating: "In the absence of active management of the third stage of labor, a uterotonic drug (oxytocin or misoprostol) should be offered by a health worker trained it its use for prevention of PPH….". WHO further states: "While WHO does not condemn the community distribution of misoprostol during pregnancy, WHO does not recommend such practice because its potential benefits and harms are currently unknown and recommends proper research to evaluate its role in reducing maternal deaths." WHO monitors new research closely and will update guidelines, if warranted, after a critical review of new evidence.

To contribute to the body of evidence regarding the use of misoprostol in a community setting to prevent PPH, this OR study documented the use of misoprostol in rural deliveries carried out by birth attendants selected by the women participating in the study; most of the birth attendants were traditional birth attendants (*dais*).

The goal of the Pakistan Initiative for Mothers and Newborns (PAIMAN) was to reduce maternal, newborn and child mortality in Pakistan. The project worked through viable and evidence-based interventions and capacity building of existing programs and structures within health systems and communities to ensure improvements and supportive linkages in the continuum of health care for women from the home to the hospital. PAIMAN was implemented in 24 districts of Pakistan from 2004-2010 and reached 34 million people.

Interventions

The quasi-experimental design encompassed intervention and comparison areas to document the coverage and process of distribution and acceptability of misoprostol tablets for prevention of postpartum hemorrhage in community settings in Pakistan. This study was based on the premise that such an intervention has the potential to significantly reduce preventable maternal deaths and provide a powerful model for more effective safe motherhood interventions in rural areas. The study was conducted with the approval of the Ministry of Health, National Maternal, Neonatal and Child Health program, and the involvement of noted public health and social scientist professionals who participated through a Technical Advisory Group (TAG) that advised periodically on the study design.

The research was carried out in Khanewal and Dadu districts, in Punjab and Sindh provinces, respectively, which were thought to be fairly representative of other districts in these provinces. There were 7 union councils assigned to intervention areas (4 in Khanewal and 3 in Dadu) and 6 union councils assigned to comparison areas (3 in Khanewal and 3 in Dadu). Selection of union councils was based on ensuring that women from both the intervention and comparison areas could reach the referral facility within two hours of travelling time. The sample size was based on ensuring enough respondents to detect differences between the intervention and comparison areas with public health significance. The study consisted of two phases: the first phase involved community awareness and community education and the second involved data collection.

To be included in the study (in either the comparison or intervention areas), women had to be between 15-49 years of age, be pregnant and intend to deliver at home during the study period, be willing to participate in the study, and be able to reach a referral facility within two hours. A total of 826 pregnant women from the comparison areas and 872 from the intervention areas participated in the study.

The pregnant women in the comparison and intervention areas received all of the same information/counseling, which included information about birth preparedness; danger signs during pregnancy, delivery and the postpartum period; the importance of timely referrals; and how and where to obtain emergency care, if needed, during the study. Information/counseling for pregnant women was provided at an initial briefing and then during two counseling sessions, which were held at one month before the expected due date and 15 days before. The person identified by the woman as her expected birth attendant, the woman's female family members, and her husband were given the same information. The 566 bi rth attendants identified by the women as their expected attendants were given a one-day training by the study teams of each district. As is appropriate in Pakistan, information about the study was also given to community elders and influentials. Finally, the pregnant women and their birth attendants in intervention and comparison areas were all given a clean delivery kit.

There were two differences between the comparison and intervention areas: first, the briefing and counseling sessions in the intervention areas for women, their birth attendants, family members and husbands, included information on all aspects of misoprostol; second, the clean delivery kits given to pregnant women and their birth attendants in the intervention areas contained 3 tablets (200 micrograms of misoprostol in each tablet) and appropriate pictorial IEC materials to remind women of key factors in misoprostol use and danger signs/referrals. Clean delivery kits were given to the pregnant women in the intervention areas specifically to ensure that they would have the misoprostol tablets available even if the birth attendant was not available at the time of the birth.

Achievements and Impact

There were 770 women who had home deliveries in the intervention areas; of these, 678 women (88 percent) took misoprostol. This OR study reinforces the assumption that proper counseling and training can help in introducing a new practice. Given the counseling/information/training provided to the pregnant women, and those who were involved in her delivery, this was probably a ma jor factor leading to 88 percent of the women who ingested misoprostol in their homes. Out of these 647 women (84 percent) took the correct dose at the correct time, which signifies high acceptability (Table 1).

Table 1: Distribution of women who used misoprostol according to variables of use

Variable	Number	Percent
Dose and timing		
Misoprostol taken correctly (correct time *and* correct dose: three tablets, after birth, before delivering placenta)	647	84.0
Misoprostol taken incorrectly (incorrect time *or* incorrect dose)	31	4.0
Experienced side effects (*N=647*)[a,b]		
Shivering/chills	178	69.3
Fever	68	26.5
Vomiting	23	8.9
Nausea	43	16.7
Abdominal pain	42	16.3
Willing to take in future (N=678)	614	91.0
Willing to recommend (N=614)[C]	612	99.7

[a] Multiple response variable
[b] Specific side effects (N=260)
[C] Of women who were willing to take in future

The side effects, experienced by 40 percent of the women who correctly took the drug, at home, were transient and did not require any specific management (Table 1), which signifies safe intake. High acceptability is demonstrated by the fact that 91percent of the women who took misoprostol at home were

willing to take the drug at future deliveries and that nearly all of the women (99.7 percent) of these respondents also expressed their willingness to recommend the drug to others.

Another indicator of the acceptance of misoprostol is that 98 percent of the birth attendants in the intervention areas who had administered misoprostol tablets *and* could recall the name of the tablets (which included 60 percent of all birth attendants) said that they would recommend the tablets to other clients. In addition, of the 92 women in the intervention areas who did not take misoprostol, only 13 reported that family member(s) objected to its use (and, of these, only one woman reported that her husband objected).

One of the main measures of the potential effectiveness of home use of misoprostol is a lower referral rate of PPH cases. The study found that 50 women in the intervention area were referred to a facility, and 3 women (0.38 percent) experienced PPH; in the comparison area, 5 women experienced PPH (0.64 percent). These rates imply that misoprostol used correctly after delivery does have an impact on reducing the need for referrals for PPH. None of the deaths in intervention areas occurred to women who had taken misoprostol.

Lessons Learned

Emerging evidence shows that trained community health workers can be utilized to distribute misoprostol tablets through a home-based approach. Furthermore, results from this OR reinforce the assumption that proper counseling and training can alter well-entrenched behaviors and practices of TBAs, pregnant women and their family members. It is further highlighted that the need to properly train TBAs through well-organized training packages is imperative. This study adds to the body of evidence that TBAs can contribute to lowering maternal mortality. By introducing a simple, low-cost, easy-to-use technology, such as misoprostol, this study supports the premise that TBAs can play a role in reducing PPH, one of the largest single causes of maternal deaths.

There are factors in the view of the project's staff that contributed significantly to the correct use and high acceptance of misoprostol, and lower referrals (in the intervention areas. They are: (1) the degree to which the pregnant women and others connected with the birth were provided information having to do with safe deliveries and, for women in the intervention areas, about misoprostol and (2) the fact that every woman delivering at home and her selected birth attendant were given a clean delivery kit (including misoprostol for those in the intervention areas).

Recommendations

- **Train community based providers in the use of misoprostol in resource constrained settings**
  The results from our study further substantiate the already available empirical evidence that recommends the use of misoprostol in resource-constrained settings by community providers. For this purpose training needs to be imparted to LHW's and community midwives in the use of misoprostol including its dosage, side effects and their management.

- **Empower families to make pregnancies safer through information**
  Raising community awareness regarding the need for birth spacing, antenatal checkups, proper nutrition during pregnancy, use of supplements, immunization, use of clean delivery kits at the time of delivery, and postpartum use of misoprostol must be carried out, especially in rural communities. In this regard LHWs through their support group meetings can especially raise awareness regarding use of misoprostol by delivering women.

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