**Evaluating the Improving Mother and Newborn Health initiative: Are community midwives increasing quality skilled birth attendance rates in Quetta, Gwadar, and Kech districts in Balochistan and are they doing so in a financially self-sustaining manner?**

**Executive Summary**

Complications of pregnancy and childbirth remain the leading cause of death and disability for childbearing women in Pakistan. With a measured maternal mortality rate of 297/100,000 live births, Pakistan is one of the six countries that contribute to more than 50% of all maternal deaths worldwide. To address the issue of high maternal and infant mortality rates and to ensure skilled birth attendance, the government of Pakistan created a new cadre of community based midwives (CMW). Pakistan is also characterized by a difficult terrain and political unrest in some provinces. The Balochistan province in particular poses problems for health services delivery given its vast area (44% of Pakistan’s territory) with only 5% of the nation’s population. One expectation is that CMWs will improve access to skilled antenatal and intra-partum care for the women living in these remote areas.

Recent research shows that these CMWs have largely failed to establish midwifery practice and attract patients. A number of reasons have been identified for this failure which include, but are not limited to: 1) community, in particular women's, lack of trust in CMWs’ capacity to conduct safe births; 2) the CMW's lack of interest in pursuing midwifery practice, partly because they are unable to meet its professional demands in terms of time and resources. In particular, the young CMWs cannot travel to patients’ homes without a chaperone, a woman during daytime and at least two additional men during night visits. 3) The CMWs lack of business skills necessary to establish a private practice; and 4) the CMWs lack of financial support essential to develop practice infrastructure and logistics (Mumtaz et al, 2013).

To address some of these issues, the *Improving Mother and Newborn health* (IMAN) intervention will be implemented in Quetta, Gwadar, and Kech Districts of Balochistan. To enable the CWMs to establish self-sustaining private practices, they will be provided business skills. A micro-finance institute will offer small loans. CMWs will also liaise with LHWs to undertake an awareness-building campaign using cellular phone SMS technology and through existing women’s support groups. To increase access to emergency transport services, the CMWs will work with their communities to establish a revolving transport fund called the Mamta Fund.

The proposed research aims to investigate whether the CMWs in the IMAN initiative are providing the essential maternal and newborn health care to women and children living in remote Balochistan districts of Quetta, Gwadar, and Kech Districts in a financially self-sustaining manner. Specifically the research will investigate: (1) whether the IMAN initiative is having an impact on CMW service uptake; (2) if any increased CMW service uptake is attributable to the IMAN initiative; (3) whether the IMAN initiative will enable the CMWs to develop financially self-sustainable practices; and (4) what is the level of quality of care the CMWs are providing?

Data will be collected in four interlinked modules over a 42 month period. Module 1 will consist of a quasi-experimental impact assessment in Quetta and Gwader and a simple pre-post survey in Kech. Proportions of births attended by IMAN CMWs will be compared with non-IMAN CMWs (matched controls) at baseline (2013) and three years later (2016) to determine (1) if CMWs have improved their coverage and (2) if this increase can be attributed to the IMAN initiative. The data will be collected using survey methods around intermittent preventative treatment during pregnancy, clean cord cutting, active management of third stage of labour, post-partum visit for the mother, thermal care (immediate drying and wrapping), immediate breastfeeding of newborns, and patient satisfaction levels with their maternity care provider.

Module 2 will explore if the IMAN initiative has enabled IMAN CMWS to establish self-sustaining practices. Organizational, social, and financial challenges faced by CMWs to establishing and running their practices and attracting new clientele will be explored. The size, sustainability and effectiveness of the Mamta fund will also be assessed. A quantitative financial tool will be used to assess the direct and indirect monetary costs as well as opportunity costs and benefits.

Module 3 will explore the quality of care provided by IMAN CMWs. In-depth interviews with CMWs, women of child-bearing age mothers-in-law and older women and other community members will be conducted. CMW patient-provider interactions during antenatal visits and childbirth will be observed to document CMWs quality of care.

An extensive knowledge dissemination plan will facilitate uptake of research findings to both inform on-going positive developments in the IMAN initiative and contribute to the body of evidence around potentially solutions to improve sustainable coverage of high impact MNCH interventions in vulnerable populations . The plan will include knowledge sharing primarily with IMAN policymakers and planners in the Government of Balochistan, MercyCorps and USAID. In addition, research findings will be shard with other provincial MNCH programs, civil society advocacy groups, the community midwives, bilateral donors and international organizations.

**1. Study Rationale**

Complications of pregnancy and childbirth remain the leading cause of death and disability for childbearing women in Pakistan. With a measured maternal mortality rate of 297/100,000 live births, Pakistan is one of the six countries that contribute to more than 50% of all maternal deaths worldwide (Hogan 2010). To address the issue of high maternal and infant mortality rates, the government of Pakistan created a new cadre of community based midwives (CMW) (PC1, 2005). Pakistan is also characterized by difficult terrain and political unrest in some provinces. The Balochistan province in particular poses problems for health services delivery given vast area (44% of Pakistan’s territory) with only 5% of the nation’s population. One expectation is that CMWs will improve access to skilled antenatal and intra-partum care for the women living in remote areas in Balochistan.

Recent research shows that these CMWs have largely failed to establish their midwifery practices. Four years after deployment of the first batch of midwives, 11.7 % of deliveries in district Jhelum and 3% in district Layyah were attended by a CMW. A number of reasons have been identified for this sub-optimal performance. These include:

1) The community, in particular the women, both young and old, do not trust the CMWs abilities to conduct a safe birth. There is a common perception that CMWs receive poor training, and as a consequence do not receive confidence from community members. In more remote districts where traditional birth attendants (*dais*) are still the dominant providers, the CMWs are understood to be 'doctors' who should be consulted in the event of a birth complication only. The CMWs however, fail to meet such lofty expectations.

2) The CMW's demonstrate a distinct lack of interest in pursuing midwifery practice, primarily because a) They are unable to meet the professional demands of midwifery practice in remote rural areas. Most are young women. Gender norms of rural Pakistani society preclude their travel alone to homes located at significant distances. During day time they need a chaperone, preferably an older woman and at night at least two men in addition to a woman. This greatly increases the opportunity costs of a CMW's practice.

b) A number of the trained CMW's were unclear of what a midwife was and what she did when they applied for training. Upon graduation, they realized this was not a career path they were interested in pursuing.

c) Income from patient remuneration was insufficient for establishment of self-sustaining practices.

3) The CMWs lack business skills necessary to establish private practices.

4) CMWs lack the financial resources essential for the development of practice infrastructure and logistics[[1]](#endnote-1).

To address some of these issues, USAID through Mercy Corps will implement the *Improving Mother and Newborn health* (IMAN) intervention in districts Quetta, Gwadar, and Kech in Balochistan. At 785 per 100,000 live births, Balochistan has the highest maternal mortality rates in Pakistan. Balochistan also has some unique needs: it is the largest province of Pakistan, compromising of 44% of the landmass, but houses only five percent of the population[[2]](#endnote-2). A sparse population dispersed over a large area complicates service delivery, especially for women in remoter regions. A separatist insurgency has created security concerns that further hamper maternal health care services provision.

The IMAN initiative will deploy 90 private-sector CMWs in the three Balochistan districts who will be responsible 5000 population each. To enable the CWMs to establish self-sustaining home-based private practices, they will be provided small loans, standard equipment and business skills training. A micro-finance institute will offer small loans in installments to the CMWs through mobile phones using Telenor’s Easy paisa service. To increase demand for biomedical skilled birth attendance, the CMWs will liaise with local lady health workers (LHWs) to undertake an awareness-building campaign using cellular phone SMS technology and through existing women’s support groups. To increase access to emergency obstetric care, the CMW's with communities to develop a revolving transport fund called the Mamta fund. Mercy Corps will also collaborate with the Pakistan Department of Health to develop a five year MNCH plan, which will include a surveillance plan. See appendix 1 for a logic model of the intervention.

The proposed research aims to investigate whether the CMWs in the IMAN initiative, have increased coverage of essential maternal and newborn health care to women and children living in remote Balochistan districts of Quetta, Gwadar, and Kech Districts in a financially self-sustaining manner. Specifically the research will investigate the following questions:

**2.** **Research Questions:**

1. Is the IMAN initiative having an impact on CMW service uptake? Has the initiative increased coverage of the full scope of skilled maternity and newborn care for women living in the interventions districts?

2. If there is an increase in CMW service uptake, is this increase attributable to the IMAN initiative?

3. Have the CMWs become self-sustaining, quality private providers?

(a) Have the financial resources provided been helpful in allowing the CMWs to become self-sustaining? Are the loans being used as intended? How exactly are the loans enabling CMWs to establish their practices?

(b) Has the business skills training enabled the CMWs to establish viable practices and provide high quality care?

(c) What are the barriers hindering CMWs from becoming self-sustaining private health care providers.

4. What is the quality of care the CMWs provide, both from perspectives of evidence-based best practice and women receiving services?

**3. Study objectives**

*Empirical objectives:* The fundamental objectives of the research are:

1. To develop evidence that the IMAN imitative has led to increased coverage of high quality maternal and neonatal health care by trained, private-sector community midwives in remote, sparsely populated, insecure districts of Balochistan.

*2.*  To explore whether CMWs access to business skills training, small loans, and infrastructural support has enabled them to develop financially sustainable private midwifery and neonatal practices. To enhance empirical understanding of the ways in which these processes operate.

3. To map women’s experiences of maternal and neonatal health care provided by the CMWs, specifically their perceptions of the quality of care provided and ability to access to emergency maternal and neonatal care.

*Knowledge transfer objective* is tofacilitate uptake of the research findings to

*1.* To support MercyCorps in the implementation of IMAN by providing on-going, contextually relevant information on program outputs.

2. To contribute to the evidence-base of innovative maternal and neonatal health care provision by community-based health care providers.

3. To inform positive developments in maternal health policy, service design and care delivery in Balochistan, Pakistan more generally and elsewhere.

**4.** **Design and Methods**

A mixed methods approach using both quantitative and qualitative methods will be used. Data will be collected in three overlapping modules over a 42-month period.

1. Module 1 will address research objective 1 will consist of a quasi-experimental impact assessment in districts Quetta and Gwader and a pre-post design in district Kech.
2. Module 2 will address research objectives using a quantitative financial tool.
3. Module 3 will address research objective 3 to assess the quality of CMW services using a range of quantitative and qualitative inquiry methods.

**Figure 1: Diagramatic of Research Design**

Integration, synthesis,

knowledge translation

***Module 1***

Measure utilization and coverage of CMW Services

***Module 3***

Evaluate the quality of care provided by CMWS

***Module 2***

Assess the financial sustainability of CMWs

Services

**5. Methods and Measurement of Variables**

***Research Products***

Policy recommendations

Service design & delivery recommendations

Practice of CMWs (inputs to clinic establishment and function)

Academic contributions (theoretical, substantive)

Practice of health professionals (inputs to curriculum, in-service training)

Contributions and challenges to wider societal discourse & public debate

**5.1 Module 1:**

Module I will consist of a cluster quasi-experimental impact assessment in districts Quetta and Gwader and a pre-post survey in district Kech. In the quasi-experimental impact assessment, women receiving services in the catchment areas of IMAN-CMWs will be compared with women living in areas covered by a non-IMAN CMW, henceforth called the controls. This method will enable us to assess, with reasonable assurance, that any changes in coverage of maternity and newborn care in IMAN-CMW catchment areas are ***due to the IMAN intervention***. Data will be collected using a baseline and end-line survey within the context of cluster quasi-experimental methods.

In addition, a pre-post survey in Kech will be conducted for MercyCorps administrative needs. This survey will be limited to documentation of changes in CMW coverage of maternity and newborn care without comparison with controls.

***5.1.1 Setting and Population*:** In the cluster quasi-experimental impact assessment in Quetta and Gwader, the intervention group will consist IMAN-CMWs (and women living in their) catchment areas. The control group will consist non-IMAN-CMWs catchment areas in Union Councils (UC) that are separated from IMAN-CMW Union Council by at least one Union Council. This is to reduce contamination of the controls, but ensure sufficient matching of socio-economic characteristics. Controls will also be matched, where possible, by year of CMW deployment. The target populations will be married women aged 15-49, who gave who have given birth in the three years prior to the survey. In the baseline survey, the study population will include women who have given birth in the three years prior to the survey. In the end-line survey, the study population will consist of women who gave between August 2013-May 2016.

In district Kech pre-post survey, all the details will be the same, except there will be no controls.

***5.1.2******Sample size and sampling*:** Sample size was calculated using the statistical package PASS 2012[[3]](#endnote-3) program and is based on CMW coverage rates in districts Layyah and Jhelum, Punjab. We assumed the Layyah CMW coverage rates of 3% are baseline coverage rates in all the study selected districts in Balochistan. For the quasi-experimental assessment, we estimate group sample sizes of 760 in group one (IMAN-CMW coverage areas) and 760 in group two (control districts) achieve 90% power to detect a difference between the group proportions of 0.0500. The proportion in group one (IMAN-CMW coverage districts) is assumed to be 0.05 under the null hypothesis and 0.1 under the alternative hypothesis. The proportion in group two (the control group) is 0.05. The test statistic used is the two-sided Z test with pooled variance. The significance level of the test was targeted at 0.05. Since cluster sampling will be done, this sample size takes into account a design factor of 1.3.

Sample size for the pre-post survey in Kech was calculated assuming CMW coverage rates will increase by 5% points from a baseline of 3%. in order to detect this difference with 90% power and 0.0 significance level, we estimate a sample size of 400 women is needed.

A cluster in this research will consist of a CMW and her catchment area. For the quasi-experimental assessment, to interview 760 women in each group (total 1520 women), we estimate 36 clusters per group will be required (total 72 clusters). The sampling frame will be drawn up using a two stage cluster sample design (see fig 2). In the first stage, two tehsils will be randomly selected in the study districts. In Quetta District, which only has two tehsils, both will be selected. In the second stage, 18 IMAN-CMW clusters per tehsil (total 36 IMAN-CMW clusters) will be randomly selected from the IMAN database. In the same tehsils, 18 control CMWs clusters (total 36) will selected. Within each selected cluster, 22 women who gave birth in the three years prior to the survey will be interviewed. [[4]](#endnote-4) The first house to be contacted will be randomly selected from the LHWs registers. Every second house will be visited. We estimate that we need to *contact* at least 124 households per cluster who gave birth in the 3 years prior to the survey. This is based on a demographic assumption that 60% of households will have a woman aged 15-49, 30% of whom gave birth in the last three years1 and a participation refusal rate of 15% (all conservative estimates) (DHS 2007).

**Figure 2: Quasi-Experimental Design Sampling Framework (Quetta)**



The sampling methodology will be repeated for Gwader and Kech, except there will be no controls for Kech.

***5.1.3 Data Collection:*** Data will be collected using modified MCHIP survey questionnaires. The tool will contain measures of the full range of essential maternal and neonatal health care the CMWs are supposed to provide -ANC care, skilled birth attendance, maternal TT Vaccination, postnatal care, modern contraceptive use, cord care, thermal control, early initiation of breastfeeding and exclusive breastfeeding. Additional questions will allow us to capture socially excluded groups and women's satisfaction with CMW care. Information will also be collected around the financial costs of seeking CMW care, other social and geographic barriers to seeking her care and the degree and ease of access to Mamta funds. If the woman cannot be interviewed at the time of contact, a mutually agreed upon time and place will be scheduled for another visit and interview. Women will be interviewed by female enumerators. It is anticipated that most interviews will last approximately 45 to 60 minutes.

***5.1.4 Data analysis***: Data will be analyzed using Stata 12.0, using the program’s ‘svy’ set of commands that take into account the design effect of clustering and stratification.[[5]](#endnote-5) Univariate and bivariate analyses will be done to assess the proportions of births that were provided a full range of essential maternal and newborn care by the CMWs at baseline and endline. Logistic regression models will then be developed to estimate the odds of attendance by CMW in the IMAN districts compared to control districts, controlled for potential confounders. Are women in IMAN districts more or less likely to use a CMW compared to women living in control districts? How satisfied are women with the care provided by IMAN CMW’s compared to control CMWs? Is there any variability in birth outcomes between the two groups of women under the care of a CMW?

***5.1.5 Personnel:***A core team of 8 data collectors (7 women and 1 man) will be trained. We need to hire and train more women than men because female interviewers will the primary data collectors. The male data collectors will interview the husbands or other men if the women are unable to answer all our questions. All enumerators will be trained in the technical details of survey data collection and in cultural sensitivities of the local context (how to approach people, their mannerisms and language, that their personal attire should align with the local cultural expectations and not be offensive). The research manager will oversee the entire survey, ensuring correct coverage and quality of the data. A quality monitoring check list will be used to ensure the quality of data collected. The PI will review the work on a daily basis and monitor data quality weekly. Completed questionnaires will be edited and entered into Stata 12.0 using a double-entry system.

**5.2 Module 2:**

Module 2 will address research objective 2. It will explore the financial sustainability of the IMAN CMWs midwifery practice. Specifically we will assess if the IMAN initiative of providing the CMWs with business skills training and micro-credit loans has enabled the CMWS to establish self-sustaining practices. A quantitative financial tool will be used to assess the direct and indirect monetary costs as well as opportunity costs and benefits. These costs include financial requirement of establishing practices and maintaining equipment. In addition, we will evaluate the temporal and monetary costs of organizing chaperones (i.e. depending on female family members to accompany young CMWs to deliveries during the day and two or more male chaperones for night deliveries) and private transportation fees. A very important contribution of the CMWs will be the establishment and maintenance of the Mamta Fund which will pay for emergency transportation services, such as an ambulances, which is essential for effectively managing complications during delivery. Specifically, we will explore is a Mamta fund has being established, what are its mechanisms for collection and disbursal of funds, who has access to these funds, are there any people excluded from the fund and how is sustainability of the fund being ensured.

***5.2.1 Data Collection and study population:*** Data for financial sustainability of CMW practices will be collected using a pre-tested financial tool. 20 IMAN CMWs (10 in each district Quetta and Gwader), randomly selected from the IMAN-CMW list developed in Module 1, will constitute our study population. They will be interviewed in-depth and asked to fill a pre-tested questionnaire at three intervals of time; baseline, 16-month mark and 36-month mark. Direct or indirect costs shall be calculated on market rates. Data for establishment, sustainability and availability of Mamta Fund will be collected using focus group discussions community members in our IMAN study clusters. Six FGD will be done at baseline, 16-month mark and 36-month mark (18 in total over the 42-month period). Each focus group discussion will be conducted with 6-10 participants in each, separately for women and men.[[6]](#endnote-6) Representation of all socio-economic groups will be ensured. Program Records will also be used.

***5.2.2 Personnel:*** A woman trained in financial analysis (Masters Economics) will collect and analyze the financial data. The qualitative data will be collected by a team of one experienced Anthropologist (Master’s degree holder, woman) and two research assistants (Anthropologist – Master’s degree holder, one man).

***5.2.3*** ***Data analysis*** Since the interviews and focus groups data will be collected in Balochi and Pushto, data will be translated and transcribed by native speakers. A database of the transcribed interviews and focus group discussions will be created in Atlas-ti, a qualitative data analysis software program.[[7]](#endnote-7) Using a social constructivist, interpretative approach[[8]](#endnote-8), data will be coded and broad themes identified. Initial coding will be guided by the stated research objectives and later by additional concepts as they emerge. Data analysis will be an on-going and iterative process through all phases of data collection, as early identification will allow a fuller probing of unanticipated concepts and variables in upcoming interviews and focus group discussions.[[9]](#endnote-9) Interpretive accuracy will be assessed by triangulation of findings across the four phases, peer debriefing within the research team and other colleagues and respondent validation.

***5.3*  Module 3**

Module 3 will address research objective 3. It will assess the quality of CMW services by (1) mapping CMW care against clinical evidence-based best practices and (2) women’s experiences of maternity and newborn care, specifically skilled attendance at birth in both normal and emergency obstetrical scenarios. Their perspectives of constitutes high quality CMW care will be mapped.

***5.3.1 Methods****:* Drawing upon the Hulton, Mathews & Stones (2000) framework for assessing quality of maternal health services in developing countries,[[10]](#endnote-10) CMW quality of care assessment will include an assessment of their practice's physical and instrumental infrastructure and their knowledge and skills to attend a normal birth, identify birth complications and provide essential newborn care. The quality of their referral links, information management systems and the use of appropriate technologies in caring for women and newborns will also be assessed.

Women’s experiences of maternity care will include an assessment of their impression of the adequacy of CMWs human and physical resources, their trust in her competency to provide safe birth attendance, identify birth complications (or potential for complications), manage an emergency (both maternal ad newborn) and provide the necessary referral services. The respect they are accorded, their sense of dignity, equity, and the emotional support they receive from the CMW will also be assessed.

***5.3.2 Data collection:*** Specifically, the following will be done:

1. Observation and documentation of 12 CMW birth facilities, both physical (e.g., whether the design of the labour room respects women’s privacy) and instrumental (e.g., Availability of instruments, their quality, availability of essential drugs and supplies) using a structured checklist.[[11]](#endnote-11)

2. Observation of 25 moment-in-time CMW-patient interactions. This will include an observation of at least 5 births overall. The points of observation will include, but not be limited to, the provider’s language and behavior toward the patient and her family, time spent with each patient and whether her concerns are addressed. Any complications or adverse outcomes will be explored in depth, which will include interviewing the woman, her family and the CMW.

3. Exit interviews with ten women who delivered in CMW practices (5 routine deliveries and 5 who required emergency obstetric care; 10 interviews total).

4. In-depth interviews with 20 CMWS and 5 referral physicians, both in the public and private sector.

***5.3.2 Personnel.*** The research team for Modules 3 will be comprised of an experienced Anthropologist (Master’s degree holder, woman) and one research assistant (Anthropologist – Master’s degree holder).

***5.3.3 Data analysis.*** Data will be analyzed as described above in 5.2.3

**Table 1: Variables Measured for Different Initiative Levels**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Data Collection Method** | **CMW** | **Mother** | **Child** | **Other Health Service Providers?** | **Policy-Makers/Program**  **Managers** | **Community** |
| **Module 1: Baseline and end-line surveys** |  | Coverage/receipt of CMW services  -Quality of CMW services received (i.e. what interventions and education did the mother receive?) | Coverage/receipt of CMS services  -Quality of CMW services received (which interventions were received; how many visits took place?) |  |  |  |
| **Module 2:**  **(Financial quantitative tool)** | -Direct and indirect costs of a self-sustaining practice.  -Opportunity costs of CMW practice |  |  |  |  | Size, sustainability and effectiveness of the Mamta Fund |
| **Module 3 Quality of CMW care**  **(Observations, in-depth**  **interviews)** | Documentation of physical and instrumental  Infrastructure  -Quality of CMW-patient interaction  (CMW behaviour, language, time spent)  -Handling birth complications from clinical evidence-based best practices perspective | -Assessment of CMW quality of care received in terms of respect accorded, sense of dignity, equity, and emotional support  -Reasons for choosing CMW | Assessment of CMW quality of care received in terms of knowledge of newborn care | -Physicians, LHW perspectives of CMW competency  - their trust and respect for CMWs' care  -Provide referral back up to CMWs' practice | - CMWs program expectations  -barriers faced at policy level to implementing IMAN initiative |  |

**6 Research team:** The project will be implemented and managed by

1. **Dr. Zubia Mumtaz,** MBBS, MPH, PhD (Public Health Medicine) (PI)**,** Alberta Heritage Foundation for Medical Research Population Health Investigator and Assistant Professor, School of Public Health, University of Alberta, Canada. She specializes in women's reproductive health with a particular focus on women’s access to reproductive health services and inequities in reproductive health policy, design and delivery of services. Dr. Mumtaz has 15 years of Anthropological and Epidemiological research experience and extensive first hand data collection experience in remote, rural and insecure environments in Pakistan. The present proposal extends one stream of her currently ongoing research project in partnership with the Punjab MCH program (funded by RAF) that is exploring if CMWs in Punjab are providing care to the poor and socially excluded women. As the PI, Dr. Mumtaz will be responsible for the conceptual guidance of the research, including development of research tools, overall project management, ensuring data quality, data analysis and report writing. She will be responsible for ensuring the research complies with all health and ethical requirements. She will be responsible for all correspondence, record keeping, reports and financial monitoring.

2. **Afshan Bhatti,** MscAnthropology and MBA is the Research Manager and Anthropologist coordinating University of Alberta’s research projects in Pakistan. Ms. Bhatti has 10-years of extensive first hand ethnographic and survey data collection experience in remote, rural environments. The proposed research extends her past successful management of many of Dr. Mumtaz’s research projects in Pakistan. Ms. Bhatti will manage the proposed project and supervise data collection.

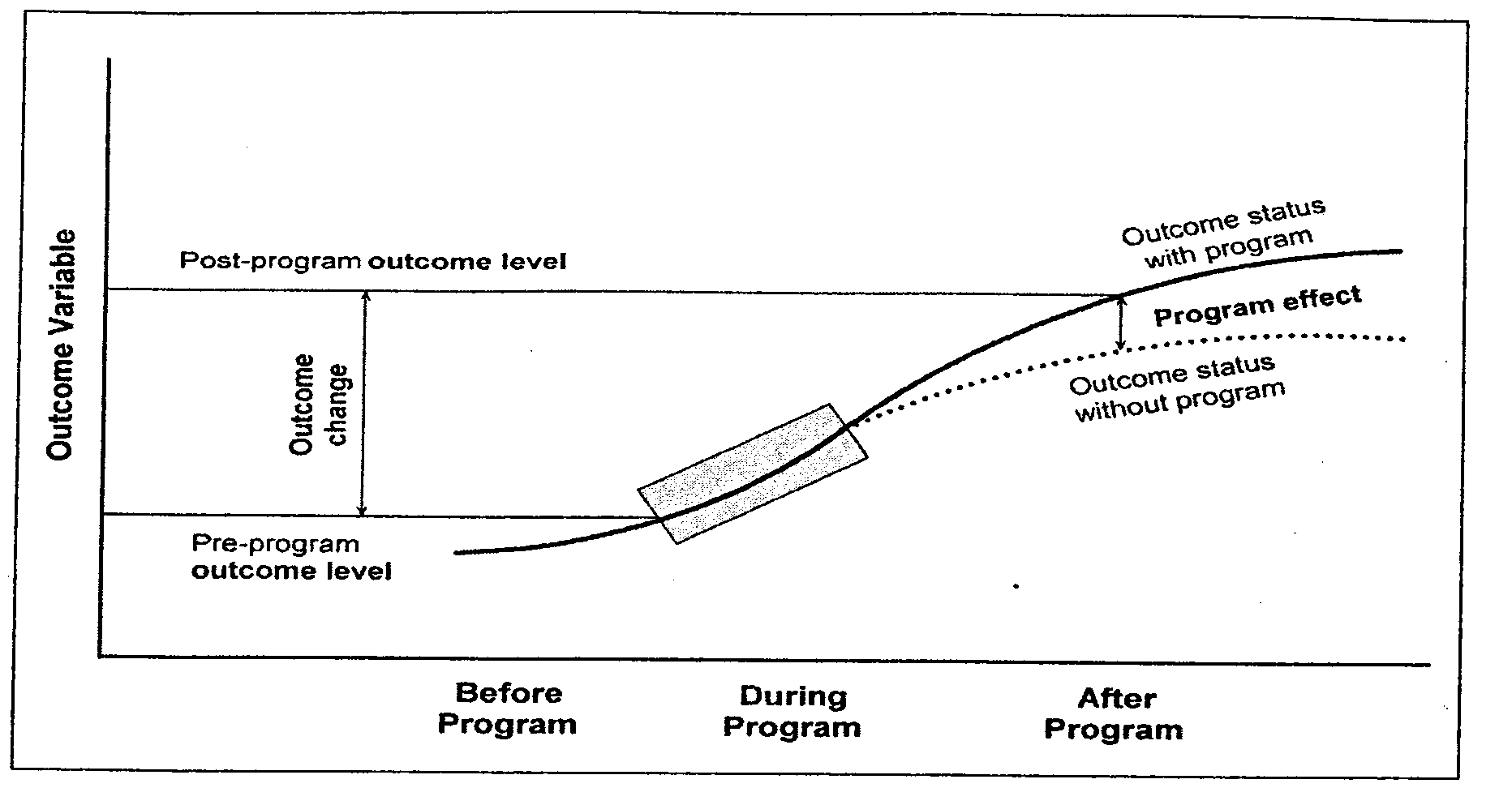
**7. Ethical Considerations**

Maintaining privacy and confidentiality of all the study participants is an important ethical issue. This will be addressed by only collecting the necessary information.[[12]](#endnote-12) Only the researchers and project manager will have access to the list of participants’ names and associated codes. The hardcopies of the survey questionnaires, the qualitative data transcripts and the consent forms will be kept in a locked cabinet in Dr. Mumtaz’s office at the University of Alberta for five years. Ethical approval will be obtained from the University of Alberta Health Research Ethics Board and Pakistan Bioethics Board[[13]](#endnote-13)

**8. Strengths and Limitations of the Study:**

A key strength of our study is the use of a quasi-experimental research methodology to assess the impact of the IMAN intervention. Comparison of intervention cases with controls will allow us to conclude, with some validity, whether or not any changes in CMW coverage and quality of care can be attributed to the IMAN initiative. Figure 3 (below) visually demonstrates the importance of teasing apart program effect from background secular changes in outcome.

**Fig 3: Outcome level, outcome change and net effect**



Another strength of our research is use of multiple mixed methods research. A key strength of this project is the research teams mixed methods expertise and extensive experience conducting research on the Pakistani CMW program in remote, rural areas.

A limitation of this research is

**9. Stakeholders/Partners Engagement Plan Specific for the OR Study**

The key stakeholders of this research are the

1) The Balochistan Department of Health including the Balochistan Maternal and Neonatal Child Health program. The Balochistan government has given top priority to the provision of the full range of essential maternal and neonatal care to pregnant women living in remote rural areas. They have recruited, trained and deployed the CMWs.

2) Mercycorps as the key implementers of the IMAN project

3) USAID as the IMAN funding body.

As indicated above, the key objective of our knowledge dissemination plan is to support MercyCorps and the government of Balochistan in the implementation of IMAN initiative by providing on-going, contextually relevant information on program outputs. To facilitate exchange of knowledge, we will develop a Research Advisory Committee (RAC), which will have at least one representative from the three stakeholders listed above. Members of RAC will be involved right from the onset of the research. Their involvement will be continuous and active. We envision this involvement to include (1) ensuring the research design meets MercyCorps and GOB policy, program and information needs (2) input in development of data-collection tools (3) data collection support, particularly around security issues in Balochistan and (4) validation of research findings. While RAC's involvement will consist of informal meetings on an as-needed basis, we will have four formal knowledge-exchange meetings. Details of these meetings are outlined in table 2 below. The research findings will also be presented at conferences and published in peer-reviewed journals

**Table 2: Knowledge exchange/dissemination plan**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Purpose** | **Stakeholder group** | **Method** | **Timing** | **Rationale** |
| 1. KD1  Share baseline KPC survey findings  Share baseline CMW financial status findings | 1) GOB  2)MercyCorps  3) USAID | Workshop  Written report | 4-month mark  (Nov 2013) | To inform stakeholders of baseline status of CMW rates of care and the financial status of their practices |
| 2. KD2  Share second CMW financial assessment findings | 1) GOB  2)MercyCorps  3) USAID | Workshop  Written report | 19 -month mark  (Nov 2014) | To update stakeholders of any changes in the financial sustainability status of the CMWs about 12-months after receiving business skills training and loans. |
| 3. KD3  Share CMW quality of care findings | 1) GOB  2)MercyCorps  3) USAID | Workshop  Written report | 31-month mark | To show stakeholders the quality of care provided by CMWs after 2 years of IMAN inputs |
| 4. KD4  Share end-line KPC survey findings  Share end-of -project financial sustainability status of IMAN CMWs practices. | 1) GOB  2)MercyCorps  3) USAID  4) Other donors  5) Other provincial MNCH project policy-makers and planners. | Workshop  Written report | 42-month mark  (Oct 2016) | To share the impact of IMAN Initiative. |

**10. Timeline:** See appendix 2.

**References**

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