SAFE MOTHERHOOD PROJECT

EXECUTIVE SUMMARY

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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGMENTS</td>
<td>i</td>
</tr>
<tr>
<td>EXECUTIVE SUMMARY</td>
<td>1-6</td>
</tr>
<tr>
<td>SAFE MOTHERHOOD PROJECT STAFF</td>
<td>7-9</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>10-11</td>
</tr>
<tr>
<td>REPORT ONE</td>
<td>12</td>
</tr>
<tr>
<td>Formative Research</td>
<td></td>
</tr>
<tr>
<td>REPORT TWO</td>
<td>12</td>
</tr>
<tr>
<td>Prevalence, Perceptions And Health Seeking Behavior For Obstetric</td>
<td></td>
</tr>
<tr>
<td>Complications, Korangi 8, Karachi, Pakistan</td>
<td></td>
</tr>
<tr>
<td>REPORT THREE</td>
<td>12</td>
</tr>
<tr>
<td>Assessing The Effectiveness Of A Safe Motherhood Information,</td>
<td></td>
</tr>
<tr>
<td>Education and Counseling Strategy, Korangi 8, Karachi, Pakistan</td>
<td></td>
</tr>
<tr>
<td>REPORT FOUR</td>
<td>12</td>
</tr>
<tr>
<td>Assessing The Effectiveness Of The Health Care Providers Training</td>
<td></td>
</tr>
<tr>
<td>Program On Safe Motherhood, Korangi 8, Karachi, Pakistan</td>
<td></td>
</tr>
<tr>
<td>REPORT FIVE</td>
<td>12</td>
</tr>
<tr>
<td>Health Information System, Korangi 8, Karachi, Pakistan</td>
<td></td>
</tr>
<tr>
<td>TRAINING MANUAL</td>
<td>12</td>
</tr>
<tr>
<td>Management and Prevention Of Obstetric Complications At Primary Care Level</td>
<td></td>
</tr>
</tbody>
</table>
ACKNOWLEDGMENTS

The Safe Motherhood Project (1996-1998) was funded primarily by John Snow, Inc./MotherCare Project and The Office of Health and Nutrition, Bureau for Global Field Programs, Field Support and Research, U.S. Agency for International Development, under the terms of Contract Number HRN-5966-C-00-3038-00 and The World Bank Population NGOs Special Grants Programme FY96; without their generosity and continuous support the project could not have been conducted. Moreover, the continuous support and encouragement of Ms Mary Ellen Stanton, Dr Marjorie Koblinsky, Dr Zahid-ul-Huque, Mr Thomas W. Merrick, Ms Anne Tinker and Ms Janet Nassim were equally essential to the project. The Department of Community Health Sciences. The Aga Khan University provided tremendous support over the entire project duration.

Those who worked on the project from its inception to its completion deserve special appreciation. We would also like to thank all the staff of the Safe Motherhood Project. Special thanks to the trainers and counselors without whose diligent efforts the project would not have achieved the success that it has.
EXECUTIVE SUMMARY

Pakistan is one of the few developing countries in Asia where levels of maternal mortality are unacceptably high, despite improvements in health services infrastructures, particularly in the urban areas. Although representative data at the national level do not exist, a survey of maternal deaths occurring in public and private hospitals of Pakistan conducted by the Society of Obstetricians and Gynecologists of Pakistan reported maternal mortality ratios of 691 and 12 per 100,000 livebirths in the public and private hospitals respectively. A community-based survey conducted in the urban squatter settlements of Karachi in 1989 reported a maternal mortality ratio of 281 per 100,000 livebirths.

The design of the Safe Motherhood Project took into consideration the findings of a community-based survey as well as a hospital-based survey conducted in Karachi. The results of both these studies indicated the inadequacy of appropriate and timely triage at the community level, largely due to the delay in referral and inappropriate local level maternal health care. Similarly, the hospital-based study revealed that socio-cultural factors and inadequate maternal services contributed significantly to the cause of delay for the 150 pregnant or recently delivered women who were brought dead to Jinnah Postgraduate Medical Center over a twelve year period [1981-1992]. Therefore, the Safe Motherhood Project, in Korangi Sector 8, Karachi, aimed at:

1. Training reproductive health care providers
2. Community-based information, education and communication campaign
3. Establishment of a referral system from the community to the hospital for immediate transfer of women with complications including hemorrhage, eclampsia, puerperal sepsis and prolonged/obstructed labor.

for early recognition and timely referral of the four main obstetric complications - antepartum and postpartum hemorrhage, eclampsia, obstructed/prolonged labor and puerperal sepsis.

The duration of the Safe Motherhood Project was twenty-nine months: April, 1996 to September, 1998 during which the following activities were conducted:

1. Formative research through in-depth interviews from thirty men and thirty women and fifteen health care providers in the intervention area for eliciting information on obstetric complications.
2. Development of training manual/material for training of the health care providers
3. Conduct of a twelve month training program for health care providers
4. Conduct of a pre and post knowledge, attitude and practice survey among the health care providers
5. Development of a video film regarding selected essential obstetric skills for the primary health care provider.

6. Development of printed information, education and counseling material for the community on the four major obstetric complications.

7. Conduct of a baseline survey for assessing the knowledge and prevalence among men and women in the community regarding obstetric complications.

8. Conduct of a pre and post evaluation of the counseling of pregnant women and their spouses.

9. Development of a simple health information system form for the clinic and tertiary hospital to track obstetric complications.

Health Care Providers

The health care providers training program spanned a period of twelve months (July 1997 - June 1998). Four categories of health care providers (12 doctors, 9 health assistants, 6 lady health visitors/midwives/nurses and 27 traditional birth attendants) participated in the training program consisting of monthly meetings for each cadre of health care provider. The fundamental objectives of the training program were:

1. To understand the role of health care providers in the role of Safe Motherhood activities
2. To recognize obstetric complications
3. To differentiate between mild, moderate and severe obstetric complications
4. To manage mild obstetric complications appropriately
5. To refer women with moderate or severe obstetric complications in a timely fashion to an appropriate health care facility
6. Take appropriate measures prior to referral

Details of the training program and teaching learning strategies are elaborated in the training manual "Management and Prevention Of Obstetric Complications At Primary Care Level", a by-product of the project. A video film titled "Selected Essential Obstetric Skills At Primary Level" was also developed to be used during the training program.

The impact of the training program was assessed by a pre and post training Knowledge, Attitude and Practice Survey and a pre and post test of the intensive training course to gauge the change in knowledge regarding cause, management and referral patterns for pre-eclampsia, eclampsia, prolonged / obstructed labor, threatened abortion, postpartum hemorrhage and puerperal sepsis.
**Intensive training course**

Overall, significant improvement in knowledge regarding obstetric complications and its immediate management were observed except for the lady health visitor/midwives/nurses. Though the initial mean scores for this cadre were higher (45.33) than the other cadres of health care providers (37.50 doctors, 33.25 health assistants and 32.41 traditional birth attendants) in the pre-test, there was no statistically significant improvement on comparing the pre-test with the post-test scores either in the overall scores or on individual case studies. This most probably reflects the small number of lady health visitors/midwives/nurse who attended the training program. On the other hand, some of the "poor" practices such as vaginal examination for antepartum hemorrhage did not decline in the post-test, among the doctors.

**Knowledge, Attitude and Practice Survey**

Generally, the level of improvement in the knowledge regarding management, referral patterns, reasons and cause of delay for the three major obstetric complications of hemorrhage, eclampsia, prolonged/obstructed labor was moderate to high except for puerperal sepsis where improvement was moderate to negligible.

Among doctors, the major themes where improvement in knowledge was observed was in management and referral patterns. Improvement in knowledge regarding "good" management for prolonged/obstructed labor rose by 60% among the trained doctors but fell by 20% among the untrained doctors. On the other hand, "massage uterus" as an immediate management for postpartum hemorrhage was reported only by a single trained doctor both in the pre and post surveys though by none of the untrained doctors. Regarding referral patterns for postpartum hemorrhage, 7/8 trained doctors reported "immediate referral" in the post-survey whilst none of them had so reported in the pre-survey. Similar levels of improvement was reported for the other obstetric complications.

Among health assistants, the major theme where improvement in knowledge was observed was in management. Improvement in knowledge regarding "good" management for postpartum hemorrhage rose by 100% among the trained health assistants but fell by 100% among the untrained health assistants. Information regarding reason/s for the obstetric complication, adverse outcomes and cause of delay also improved moderately among trained health assistants illustrating the effectiveness of our training program in improving knowledge. "Ruptured uterus" being an adverse outcome for prolonged/obstructed labor improved by 400% among the trained health assistants but only one untrained health assistant so reported in the post-survey.

Among lady health visitors/midwives/nurses the major themes where improvement in knowledge was observed was in management and reasons for the specific obstetric complication. Improvement in knowledge regarding "good" management for postpartum hemorrhage rose by 100% among the trained lady health visitors/midwives/nurses but no change among the untrained lady health visitors/midwives/nurses. On the other hand, the level of improvement among trained lady health visitors/midwives/nurses for reasons for puerperal sepsis was disappointing and suggests that more attention needs to be given in the training program to puerperal sepsis.
The improvement in overall knowledge regarding obstetric complications and the need for referrals, and risk factors for high-risk pregnancies, though discussed in our training program, showed little impact as only minimal change in level of improvement had been reported.

Among traditional birth attendants the level of improvement in the knowledge regarding management and referral patterns was poor except for postpartum hemorrhage where there was a significant improvement in the assessment of immediate management - specifically "massage uterus" and "provision of oxytocics". On the other hand, knowledge regarding reasons for prolonged/obstructed labor improved significantly but recognition of obstetric complications or reasons for high risk pregnancy was poor. Recognition of danger signs for the mother or baby during antenatal, intrapartum or postnatal period improved significantly. Improvement in knowledge regarding spotting during the antenatal period was 46.2%, for decrease in frequency or intensity of pain was 333.3% during the intrapartum and for purulent vaginal discharge during the postnatal period was 160%.

Generally speaking, the improvement in knowledge regarding management and referral patterns among the four cadres of health care providers was significant though there were exceptions especially among health assistants and traditional birth attendants. As we were unable to assess behavior change in the context of documented improvement in prompt and timely referral to Jinnah Postgraduate Medical Center for life-threatening obstetric complications due to our inability to implement the clinic and Jinnah Postgraduate Medical Center based health information system we cannot demonstrate that such training programs will increase the number of women with obstetric complications who utilize appropriate medical services. However, the overall improvement in change in knowledge is extremely encouraging for advocating such training programs among primary care practitioners for Safe Motherhood with minor modifications.

Recommended modifications/additions include:

1. Inclusion of more visual aids, especially for training of traditional birth attendants. In this regard, a video film depicting selected essential obstetric skills at the primary care level to be used during the training program will, we hope, have an impact on the knowledge of basic management skills.

2. Increasing the time devoted to some sessions such as puerperal sepsis, "poor practices".

3. Utilizing hospital/clinic facilities for essential obstetric skills training.

Community-based information, education and communication campaign

The duration of the community-based information, education and communication campaign was three months during which 75 pregnant women and 28 husbands were counseled. However, the development of appropriate counseling materials was intensive and time consuming. In-depth
interviews was conducted on 30 women and 30 men to assess existing knowledge on the four major obstetric complications. Based on the results of these and several meetings with technical consultants and senior gynecologists, culturally and clinically appropriate materials were developed. This process took nearly 18 months and culminated in the following materials:

1. An emergency booklet focusing on the reasons for delay, the necessity for making an emergency plan, emergency messages and preventive messages

2. An antenatal card focusing on three antenatal check-ups, the nature of these check-ups, emergency messages for obstetric complications and preventive messages on nutrition, iron and folic acid supplementation and tetanus toxoid immunization.

3. Five posters each depicting one of the five common obstetric complications - antepartum hemorrhage, postpartum hemorrhage, obstructed labor, eclampsia and puerperal sepsis. The story line for each poster was based on a real story of that particular life-threatening obstetric complication and depicted the delay factors associated with moribund women arriving too late at the hospital. The key message displayed at the bottom of each poster was referral to Jinnah Postgraduate Medical Center for that particular obstetric complication.

4. A preventive poster describing key preventive messages regarding antenatal care, diet, iron and folic acid supplementation and tetanus toxoid immunization.

The counseling strategy adopted was direct counseling as this was considered the most cost effective communication method. Mass media, while available, would be both expensive to produce and difficult to utilize and assess as coverage extended far beyond the target area. The counselors were members of the Safe Motherhood Project field team who underwent extensive training to facilitate their knowledge and communication skills. The individuals to be counseled were pregnant women and their husbands. Each individual counseled was approached at least four times: administration of pre-evaluation questionnaire, counseling session I - antenatal card and emergency booklet, counseling session II - posters and finally administration of post-evaluation questionnaire (immediate evaluation). Subsequently, a fifth contact was made with a 25% sub-sample of counseled men and women for the purposes of conducting a second post-evaluation (delayed evaluation).

The effectiveness of the counseling was assessed by a pre and post evaluation (immediate and delayed evaluations) to gauge the change in knowledge regarding when and where to refer for obstetric complications and making appropriate arrangements for an obstetric emergency.

Overall, there was a marked improvement in knowledge regarding preventive measures during pregnancy both in the immediate and delayed evaluations. From our perspective, a significant improvement was in the change in knowledge regarding the minimum number of antenatal visits [three] as recommended by the counselors. The level of improvement regarding serious obstetric problems were more pronounced among women than men. This was particularly true for
prolonged / obstructed labor and puerperal sepsis where the improvement among women was 1,200% and 2,200% respectively but among men was 200% and 800% respectively. A similar pattern of improvement in knowledge was observed for obstetric complications during antepartum, intrapartum and postpartum periods. Generally, improvement in the level of awareness was higher among women than men with minimal change in the level of improvement when comparing responses from the immediate evaluation to the delayed evaluation. Surprisingly, improvement in knowledge of referral to Jinnah Postgraduate Medical Center and taking a blood donor was very encouraging and, we believe, does reflect the skills of our counselors in conveying the importance of blood donors.

Finally, the improvement in knowledge regarding discussing and taking permission from family elders / husband for referral to a hospital in the advent of an obstetric emergency was most inspiring. Not surprisingly, the level of improvement was more marked among women [460% and 240% in the immediate and delayed evaluations respectively] than men [19% and 40% in the immediate and delayed evaluations respectively].

Though the IEC intervention phase was shortened from our original plan of a year to only three months, nevertheless our results do demonstrate substantial change in knowledge in preventive obstetrics and serious / life-threatening obstetric complications. Thus, though we cannot assess behavior change due to our inability to implement the clinic and Jinnah Postgraduate Medical Center based health information system, our results clearly demonstrate a marked improvement in raising awareness about Safe Motherhood in this community.

**Conclusion**

Despite the short duration of the Safe Motherhood Project and our inability to document behavior change, we believe that the change in knowledge, both at the health care provider level and the community level, has been significant. Furthermore, this pilot project has, we feel, attained other significant achievements in the arena of capacity building and initiating similar Safe Motherhood research projects. A notable outcome of this project is the initiation of a similar project under the auspices of The World Bank in another low socioeconomic district of Karachi. In addition, the training manual, the video film on selected essential obstetric skills for primary health care practitioners and the printed material regarding information, education and counseling will, we hope, be used by interested health personnel in improving maternal health. Furthermore, in the context of training of health care providers, we advocate utilizing hospital / clinic facilities for essential obstetric skills training.
# List of Safe Motherhood Project Staff

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7
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INTRODUCTION

Rationale
Pakistan is one of the few developing countries in Asia where levels of maternal mortality are unacceptably high, despite improvements in health services infrastructure, particularly in the urban areas. The maternal mortality ratio (MMR) in the country is estimated at 412 maternal deaths per 100,000 live births although representative data at the national level do not exist. A survey of maternal deaths occurring in public and private hospitals of Pakistan, conducted by the Society of Obstetricians and Gynecologists of Pakistan, reported MMRs of 691 and 12 per 100,000 live births in the public and private hospitals respectively. A Maternal and Infant Mortality Survey, conducted in the squatter settlements of Karachi in 1989, produced a maternal mortality ratio of 281 per 100,000 live births [95% CI 186-375].

The design of this Safe Motherhood Project took into consideration the findings of a community based survey as well as a hospital based study conducted in Karachi. Results from the MIMS survey\(^2\) indicated that appropriate and timely triage is inadequate at the community level, largely due to the delay in referral and inappropriate local maternal health care. Similarly, a hospital-based study, conducted at the Jinnah Postgraduate Medical Center(JPMC)\(^3\) revealed that socio-cultural factors and inadequate maternal services contributed significantly to the causes of delay for the 150 pregnant or recently delivered women who were brought dead to JPMC over a twelve year period [1981-1992].

Goal & Objectives
The goal of the Safe Motherhood Project in Karachi was to increase timely referrals for obstetric emergencies from Korangi 8 to JPMC by implementing two main interventions, which included training of primary level health care providers practicing in Korangi 8 and a community-based Information, Education, and Communication (IEC) strategy targeting pregnant women and their husbands. In order to evaluate the effectiveness of the two main interventions in enhancing access to and use of essential obstetric services for women with maternal complications, a health information system (HIS) was going to be created for and implemented with the assistance of project staff at JPMC, as well as in participating local clinics, in order to gauge referrals for obstetric complications from Korangi 8. Due to bureaucratic constraints at JPMC and lack of availability of appropriately skilled manpower for this component of the project, it was not possible to implement this methodologically crucial component in either JPMC or the local clinics. Details of the two main interventions that were implemented successfully are provided below.

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\(^1\) Written by Nazo Kureshy


Training of Health Care Providers

The aim of the training program, which spanned a period of 12 months, was implemented by six experienced obstetricians, two of whom practice at the Department of Obstetrics and Gynecology at JPMC. The aim of the initial 3-day crash training was to ensure recognition, timely management and referral of four major obstetric complications (hemorrhage, eclampsia, obstructed labor and sepsis) by primary level health care providers. Subsequent monthly training sessions re-emphasized the main messages of the crash training and introduced other pertinent topics related to prevention (i.e., antenatal care, family planning) and reproductive health (i.e., reproductive tract infections, infertility, breast and cervical cancers). Approximately 70% of all health care providers identified in Korangi 8 from the following four categories participated in the training program: Doctors, Lady Health Visitors/Midwives, Traditional Birth Attendants, and Health Assistants (medical practitioners who do not possess an MBBS degree but practice in the community and are identified as “doctors”). The impact of the training program in enhancing knowledge and attitudes of trainees in recognition, management and referral of the four major obstetric complications was assessed through a small test administered before and after the 3-day crash training as well as comprehensive Knowledge, Attitude and Practice (KAP) Surveys conducted both prior to initiating and after completing the year-long training program. It was not possible to formally assess behavior change of the trainees within the scope of this project.

Information, Education and Communication (IEC) Campaign

Keeping community perspectives in the forefront, an Information, Education and Communication (IEC) campaign was developed to primarily increase awareness about symptoms of major obstetric emergencies and actions required at a household level. The IEC materials (antenatal card; booklet containing messages about preventive care, delay factors in an obstetric complication and emergency planning; posters focusing on major obstetric complications) developed for the one-to-one counseling sessions contain stories and graphics that capture the perspectives and experiences of women and men in the community. The target audience identified in Korangi 8 comprised of 630 pregnant women and their husbands. The incorporation of men was considered essential in the communication strategy since they are the primary decision-makers for planning for and arranging logistics in an obstetric emergency and can assist in creating an enabling environment within the household during their wife’s pregnancy for receiving preventive care. Six female and two male counselors implemented the one-to-one counseling effort, in which 26 couples were counseled (75 pregnant women, 28 men). The achievement of the counseling effort was evaluated through a short pre-and post counseling questionnaire focusing on retention of key emergency obstetric and preventive messages.
This report has been organized as follows:

**Report One**: presentation of the formative research conducted as preliminary investigation into the knowledge regarding obstetric complications from community men and women and health care providers in the intervention area.

**Report Two**: presentation of the baseline survey conducted among men and women in the intervention area to assess the prevalence, perceptions and health seeking behavior for obstetric complications.

**Report Three**: presentation of the assessment of the effectiveness of a Safe Motherhood Information, Education and Communication counseling strategy in the intervention area.

**Report Four**: presentation of the assessment of the health care providers training program on Safe Motherhood in the intervention area.

**Report Five**: the primary healthcare facility and tertiary hospital based health information system instruments.

**Training Manual**: the training manual used for training of the health care providers.