MotherCare
1989–1993
Country Project Descriptions

U.S. Agency for International Development
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The opinions expressed herein are those of the author(s) and do not necessarily reflect the views of the U.S. Agency for International Development.
MOTHERCARE
1989 - 1993

COUNTRY PROJECT DESCRIPTIONS
ACKNOWLEDGMENTS

In 1987 the Safe Motherhood Initiative was launched by representatives from a number of international organizations in collaboration with many from developing countries concerned with the high levels of maternal mortality. In response to the need expressed for this very neglected area in 1989, the United States Agency for International Development planned and launched the Maternal and Neonatal Health and Nutrition Project, a component of which became MotherCare. This subproject has as its goals the reduction of maternal and neonatal mortality and related morbidities, and the promotion of the health of women and newborns. Staff of USAID who took part in the planning, development, and implementation of this effort are to be congratulated for its breadth and depth; particular appreciation goes to Mary Ann Anderson and Ann Van Dusen, plus staff in the USAID missions in countries where MotherCare has focused its efforts: Bolivia, Guatemala, Nigeria, Uganda and Indonesia.

MotherCare’s work is the combined effort of many dedicated individuals whose names are listed on the next pages. Equal recognition goes to MotherCare staff, at headquarters, among the subcontractors, and in-country, as well as to the local project teams without whose expertise, commitment and endurance MotherCare would have been left far from its goals.

The time was short, the process of project planning and implementation was not always the easiest, and the funds were always a limiting factor given the immensity of the challenge. What made it so enjoyable was the synergy of spirit among those who worked on the project. The problems are compelling and there exists no silver bullet in this field, but the reward has been great.

Finally gratitude, respect and admiration is given to the women, their families and their health care providers who have donated their perspectives, ideas and efforts to the design and implementation of these projects.
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Anne Otto, Training Coordinator, ACNM, Uganda Life Saving Skills Project
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<td>Nasirnagar Upazila Pilot Project</td>
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<td>Bolivia</td>
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SETTING B

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<td>MotherCare Nigerian Maternal Care Project</td>
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SETTING C

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<td>Bolivia</td>
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<td>Congenital Syphilis Prevention in Nairobi City Commission Public</td>
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<td>Ecuador</td>
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INTRODUCTION

This report is a companion to MotherCare’s Summary Final Report, MotherCare Lessons Learned: 1989-1993, and provides a brief overview of twelve projects sponsored by MotherCare between 1990 and 1993. Demonstration projects and applied research studies are outlined in Tables 1 and 2 respectively -- with inputs and results to date (September, 1993).

MotherCare’s projects were located in a variety of settings, from resource poor (Setting A) to resource rich (Setting C). Resources refer to the health services infrastructures. Typically in those settings that are considered "poor," women are isolated from information as well as services, and the services that exist are either non-functional or of poor quality. Projects in the five long-term countries (Indonesia, Uganda, Nigeria, Bolivia and Guatemala) plus field projects (in Bangladesh, the Philippines and Kenya) and the two applied research projects (in Ecuador and Indonesia) are described briefly within the sections entitled Setting A, B and C, depending upon the country setting in which the projects took place.

Objectives and methodologies, evaluation means and results are presented. Many of the results are preliminary; further analysis is scheduled for the first year of Phase II of MotherCare (1993 - 1998). Introducing each of the setting sections is a brief description of the situation in that setting, plus MotherCare’s recommendations for actions in that setting within three major intervention strategies:

-- Policy Formulation
-- Improved Services
-- Behavior Change

These recommendations are made in light of lessons learned from the five years of MotherCare’s experience. We hope this report of specific projects, plus the Summary Final Report, are useful to you in programming for safe motherhood.
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<tr>
<th>Project Setting/Site</th>
<th>Intervention Package</th>
<th>Size; Evaluation Design</th>
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<tr>
<td>&quot;A&quot; SETTINGS</td>
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<tr>
<td>Inquisivi, Bolivia</td>
<td>Affect Behavior</td>
<td>• 15,000 people</td>
<td>• 15,000 people</td>
<td>More analysis needed of pre-post-case, control data to determine change over time, and association with interventions.</td>
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</tbody>
</table>
|                      | • Form/boost women’s groups  
|                      | • Self-diagnose maternal/neonatal health and nutrition problems  
|                      | • Problem solve at the community level  
|                      | • Provide educational materials on family planning, pregnancy, labor/delivery and postpartum/neonatal periods to women, families, and birth attendants  |  | • Reduction of perinatal mortality from 103 to 38/1000 births  
|                      |                       |  | • Reduction of neonatal mortality from 69 to 16/1000 live births  
|                      |           |  | • Acceptance of family planning from 0 to 27%  
|                      | Improve Services    | • Train local birth attendants, women and husbands in safe birth, especially regarding hemorrhage  | • Increase use of services  
|                      |                     | • Provide family planning  
|                      |                     | • Establish links to private referral hospital  
|                      | Enhanced Policy Reform  | • Raise awareness of other NGOs re: maternal/neonatal health problems  
|                      |                      | • Enhance government awareness of rural issues through national subcommittees  | - TT2 coverage from 48% to 82%  
|                      |                       |  | - At least one prenatal visit: from 45% to 77%  
|                      |                   |  | - Safe birth kit use 0 to 27%  
|                      |                     |  | - Trained birth attendant use from 13% to 57%  

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<tr>
<td>Nasirnagar, Bangladesh</td>
<td><strong>Affect Behavior</strong></td>
<td>• 23,000 pop.</td>
<td>• Pre and post-KAP (only pre-survey carried out - Oct 1992, post test scheduled for February 1994)</td>
<td>Data not available to judge success; must await final survey results (one year post-IEC intervention)</td>
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<td></td>
<td>• Develop motivational booklets for women, husbands, mothers-in-law, in prenatal care, safer birth techniques, breastfeeding, and appropriate use of services</td>
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<td>• Develop action cards for pregnant women on self-care (e.g. nutrition, iron, safe birth, breastfeeding)</td>
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<td></td>
<td>• Develop action cards for TBAs on danger signs, safe birth, postnatal care</td>
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<td>• Mobilize Women's Savings Groups to establish emergency referral funds</td>
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<td><strong>Improve Services</strong></td>
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<td></td>
<td>• Place midwives at level of 10,000 population</td>
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<td></td>
<td>• Link midwives and TBAs through training on danger signs during pregnancy, labor/delivery, and in puerperium and through prenatal visits by TBAs with their clients</td>
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<td></td>
<td>• Develop management protocols for **</td>
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<td></td>
<td><strong>Enhance Policy Reform</strong></td>
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<td></td>
<td>• Exchange information with other NGOs</td>
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<td>Project Setting/Site</td>
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<td>&quot;B&quot; SETTINGS</td>
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<td>Quetzaltenango, Guatemala</td>
<td>Affect Behavior</td>
<td>• Develop posters to increase hospital staff awareness of the need to treat TBAs well, respect women's privacy.</td>
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<td></td>
<td>Improve Services</td>
<td>• Train 20 TBA trainers and 400 TBAs to recognize danger signs and make appropriate referrals, over 3 mos. period (3/92-5/92)</td>
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<td>• Upgrade knowledge and skills of hospital and health center staff (80 to 30 respectively) to respond to obstetrical and neonatal complications</td>
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<td></td>
<td>• Develop norms and protocols for hospital and health center management of obstetrical and neonatal complications, as well as normal births (6/19 - 11/91)</td>
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<td></td>
<td>Enhance Policy Reform</td>
<td>• Participate in meetings at national and divisional level</td>
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<td>• 150,000 pop. in treatment and control</td>
<td>Hospital neonatal mortality rate declined from 38 to 32/1000 live births over 3 years</td>
<td>Analysis of mortality, complication, and referral pattern data needed, specifically to assess appropriateness of referrals and the management of neonatal complications</td>
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<td>Longitudinal surveillance (VERS) in treatment and control areas (80 clusters)</td>
<td>Improvements in provider practices observed at hospital and health center</td>
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<td>Pre-intervention period 9/90 - 3/93</td>
<td>Increased referrals from TBAs noted from both treatment and control areas. May be due more to hospital staff improvements than TBA training (both management and attitudinal).</td>
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<td>Intervention process 3/92 - 5/92</td>
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<td>Post-intervention 6/92 - 5/93</td>
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<td>Surabaya, Indonesia</td>
<td><strong>Affect Behavior</strong>&lt;br&gt;- One day training of 502 local community workers of women’s organizations (PKK) and 375 TBAs to assess pregnancy risk through scoring system with monthly follow-up by HC staff.&lt;br&gt;- Use games, posters, and pamphlets to educate women, community workers and TBAs about danger signs during pregnancy, labor and delivery, and postpartum/neonatal period. Radio spots on danger signs provided daily.&lt;br&gt;- Work with pregnant women to use color code signifying risk status on her door.</td>
<td><strong>Treatment Area:</strong>&lt;br&gt;491,500&lt;br&gt;(12 sub-districts)&lt;br&gt;- <strong>Control Area:</strong>&lt;br&gt;278,000 (est.)&lt;br&gt;(6 subdistricts)&lt;br&gt;- Pre (Aug 91 - July 92) and post survey (Aug 92 - Apr 93) within treatment and control areas.&lt;br&gt;- Risk score cards collected on 6010 pregnant women in treatment area (84%) through April 1993.&lt;br&gt;- Maternal/perinatal mortality follow-up by medical staff in treatment area.</td>
<td><strong>Mortality data not yet available</strong>&lt;br&gt;- Risk assessment alone does not appear sufficient to convince women to use referral system: costs still major issue.</td>
<td>Analysis of mortality, service use and cost data needed</td>
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| Tanjungsari, Indonesia | **Affect Behavior**  
- Establish an IEC campaign to alert women to danger signs of pregnancy, labor/delivery, postpartum/neonatal periods and to use services appropriately (through posters, pamphlets, campaign days, radio spots). (Launched Dec. 1, 1992) |  
- Treatment: 90,000 pop.  
- Control: 43,000 pop.  
- Longitudinal treatment control surveillance  
- Records and registers of Health Centers, Birthing Huts, and hospitals. |  
- Maternal mortality decreased from 508 to 225/100,000 live births but the numbers are small (from 20 in 2 years to 6 in 15 months).  
- Perinatal mortality trend is downward from 46/1000 births (Jan - June '92) to 40 (July - Dec '92) to 36 (Jan - June '93).  
- Obstetrical knowledge of doctors and midwives improved by 28% and 56% respectively.  
- Referrals from TBAs to birth huts increased during pregnancy from 19% to 53% as well as during labor/delivery (17% to 33%); especially marked was the increase in referral for obstetrical emergencies.  
- Knowledge of purpose of birthing huts: for prenatal care increased from 7% to 23%; for births increased from 23% to 48% after social marketing.  
- Knowledge of danger signs improved for both TBAs and for women, but did not necessarily lead to action. |  
- Data analysis needed on costs, levels of complications, appropriateness of referral, use of birthing huts and relationship with mortality reduction.  
- Use of birth huts for prenatal and delivery care appears associated with midwives presence. |
|                     | **Improve Services**  
- Establish 10 birthing huts in 27 villages near road (implemented Jan - Aug 1992)  
- Strengthen referral system with  
  - two way radios connecting birthing huts, health centers, and hospital (implemented 8/92)  
  - ambulance for obstetric emergencies (implemented 3/92)  
- Train doctors, midwives, and TBAs in recognition of complications and their management or referral (beginning 4/92)  
- Develop protocols for managing complicated obstetrical and perinatal cases  
- Establish schedule for midwife visits to birthing huts  
- Establish use of a perinatal/maternal death audit from community to hospital level (implemented from Sept. 1992) |  |  |  |
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<td>Bauchi and Oyo/Osun States, Nigeria</td>
<td><strong>Affecting Behavior</strong>&lt;br&gt;• Conduct formative research in both states prior to strategy workshop for message development&lt;br&gt;• Implement state level IEC campaigns on women’s (and families’) responses to risks and complications, self care and appropriate use of services</td>
<td>9-10,000,000 people</td>
<td>58 of 80 midwives fully trained scored &gt;70%</td>
<td>Needs time before process evaluation to determine midwives’ skill at handling complications.</td>
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<td><strong>Improve Services</strong>&lt;br&gt;• Establish two hospital training sites for clinical training of midwives in state&lt;br&gt;• From both states, train a total of master trainers (10) who then train midwives (80) in Life Saving Skills (LSS) and interpersonal communications skills; train nearly 400 other midwives in abbreviated LSS course plus 44 doctors, and 60 chief matrons&lt;br&gt;• Train 40 TBAs (total in both states) in interpersonal communication skills</td>
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<td><strong>Enhance Policy Reform</strong>&lt;br&gt;• Implement National and State level policy meetings&lt;br&gt;• Draw up memorandum of understanding with national and state officials that specifies responsibilities and resource allocation&lt;br&gt;• Identify/establish policy and technical communities to guide and monitor program implementation</td>
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<td>Uganda</td>
<td>Affecting Behavior</td>
<td>Approximately 500,000 people in catchment area.</td>
<td>Sample of midwives observed post-training showed major improvement in skills</td>
<td>Needs time before process evaluation to determine midwives' skill at handling complications.</td>
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<tr>
<td></td>
<td>No activities</td>
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<tr>
<td>Improve Services</td>
<td>Update protocols in Midwife's Handbook and Guide to Practice</td>
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<td>Train 16 trainers of midwives in Life Saving Skills to train 160 midwives representing tutors from all midwifery schools; orient 50 midwifery supervisors and 530 staff from hospital maternity in LSS</td>
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<td>Enhance Policy Reform</td>
<td>Use the Handbook as legal basis for expanding the role of midwives</td>
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<td>Form an Advisory Committee of MCH leaders and educators to meet quarterly</td>
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<td>Institutionalize LSS through use in pre-service curriculum</td>
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<td>Allocate funds and personnel for project implementation</td>
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<td>Project Setting/Site</td>
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<td>&quot;C&quot; SETTINGS</td>
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<tr>
<td>Cochabamba, Bolivia</td>
<td>Affecting Behavior</td>
<td>Population 560,000</td>
<td>No effect on use of services (family planning, prenatal care) or contraceptive use seen through survey</td>
<td>Interventions did not even have year to run and did not finish all campaigns/training planned; more time needed for implementation and assessment.</td>
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<td>(22,500 pregnancies per year)</td>
<td>Clinic statistics show major increase in use of prenatal care (varying from 17 to over 100% by clinic) and of contraceptive use among NGOs (new IUD users: 59%; new pill users: 88%; new condom users: 59%)</td>
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<td>Pre, post survey of sample of Cochabamba population</td>
<td>Awareness of messages rose from 42 to 71% for prenatal care; knowledge of danger signs, from 26 to 42%; of family planning, 35 to 45%.</td>
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<td>Improve Services</td>
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<td></td>
<td>Provide contraceptives to all NGOs; equipment/supplies for maternal/neonatal care to four NGOs</td>
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<td>Develop standard monitoring information system for all participating clinics</td>
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<td>Enhancing Policy Reform</td>
<td>Coordinate a regional training subcommittee composed of MOH and NGO officials to develop curricula and carry out training</td>
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<td>Participate/act as secretariat, for national committees with representatives from central MOH, NGOs, etc. on training, IEC and services</td>
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<td>PROJECT</td>
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| Kangaroo Mother Method | To determine the efficacy of the Kangaroo Mother Method for low birth weight infants on infant morbidity, growth and cost of care. | • Hospital-based clinical trial with treatment (KMM) vs controls (normal hospital procedure).  
• 603 children < 2kg born at Isidro Ayora Maternity between November 1991 and December 1992. Eligible = 308 children. Followed up through 6 months of age. | • No difference in cumulative incidence of mortality.  
• Cumulative incidence of severe illness (mostly lower respiratory conditions, but also apnea, aspiration, pneumonia, septicemia, generalized infections) three times less in KMM by 6th month of life and highly significant for the 2nd month onwards.  
• No difference in moderate conditions (urinary infections).  
• Substantial differences in mild illnesses (including upper respiratory dermatitis, mycosis, jaundice, hip displacement and diarrhea) in first 2 months of life with KMM experiencing 35% less.  
• Cumulative incidence of rehospitalization two times greater in control than KMM at 5th, 6th month of life. | • Difference in "method adherence," (e.g., skin-to-skin contact, sleeping with infant) observed in first few months, differences in growth and severe morbidity observed only after 2 months of age.  
• Given the hospital is "Baby Friendly" meaning all mothers are encouraged to breastfeed exclusively, study could not assess effect of breastfeeding practices on diarrhea or other illnesses of non-breastfeeding.  
• Transference of responsibility for low birth weight infant to mother resulted in greater use of preventive care services, possibly due to improved bonding. |
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<th>PROJECT</th>
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<tr>
<td>Congenital Syphilis Prevention</td>
<td>• To increase the proportion of pregnant women who seek prenatal care before 20 weeks gestation, who are screened for syphilis, treated if seropositive, and partners notified and treated. • To study health-seeking and health Providing behavior during pregnancy and factors that influence these behaviors.</td>
<td>• Clinic records in 10 participating Nairobi City Commission Clinics • 800,000 women in catchment area; 10,764 new prenatal visits per year</td>
<td>• Growth improved for KMM by 150 - 200g increment seen between 3rd and 6th month of life. • Amount of costly care decreased for KMM in the post-natal period as a result of decreased serious illness and hospitalization.</td>
<td>Pre-project research (1989) on these same clinics showed: • 60% prenatal attenders screened • 9% testing seropositive were treated • % partners notified were not measured but can be assumed minimal</td>
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<tr>
<td>Nairobi, Kenya</td>
<td>June 1992 - August 1993</td>
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<td>PROJECT</td>
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<td>Improved Iron Folate Tablet Distribution to Alleviate Maternal Anemia in Two Subdistricts of the Indramayu Regency</td>
<td>• To test the effectiveness of community-based iron folate tablet distribution system to increase coverage and compliance, both with and without IEC, as compared with a standard clinic-based distribution system.</td>
<td>• 10,000 households in both subdistricts • Treatment and control • Longitudinal surveillance</td>
<td>With village-based distributors (TBAs) and a continuous supply of tablets: • average number of tablets taken per months by pregnant women increased from 5 to 13 • the total number of tablets taken during pregnancy increased from 23 to 64 • the percentage of pregnant women taking tablets increased from 53 to 91% These same indicators increased with the 6 month communications campaign but not significantly beyond that of the new distribution system alone.</td>
<td>• Total number of tablets taken did not reach the level expected by the MOH. • Hemoglobin level not done due to field problems with the testing equipment.</td>
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<tr>
<td>Indramayu, Indonesia</td>
<td>August 1990 - February 1993</td>
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<td>PROJECT</td>
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<tr>
<td>Prevention of Prematurity in Pregnant Women with Bacterial Vaginosis</td>
<td>- To determine if treatment with clindamycin cream will decrease the incidence of preterm delivery or low birth weight (LBW) in pregnant women with bacterial vaginosis (BV).&lt;br&gt;- To determine if treatment with clindamycin cream will decrease the incidence of endometritis and amniotic fluid infection in pregnant women with BV.&lt;br&gt;- To determine the prevalence of treatable sexually transmitted diseases (STDs) in pregnant women and its impact on maternal and child health.</td>
<td>Double-blind randomized clinical control trial comparing clindamycin cream vs placebo&lt;br&gt;- 710 pregnant women who tested positive for BV in four clinics in Surabaya and three hospitals in Jakarta</td>
<td>- 18% of pregnant women who attended public clinics and maternities in Surabaya and Jakarta tested positive for BV.</td>
<td>- In November 1993, results of clinical trial will be known.</td>
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<td>Surabaya, Indonesia</td>
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<td>November 1991 - September 1993</td>
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<td>Gastric Delivery System, Iron Trial</td>
<td>- To determine if iron provided via a gastric delivery system vs iron folate tablet is effective in raising hematologic status and if compliance increases.</td>
<td></td>
<td>- 300 Pregnant Women&lt;br&gt;- 300 Non-pregnant Women</td>
<td>- Data analysis from Surabaya and University of Kansas to be done.</td>
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<td>Surabaya, Indonesia</td>
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## Setting A

Setting A is an isolated setting; it has a district hospital but lacks capacity to respond to obstetric complications. There is essentially no peripheral care and families and women in particular remain isolated and remote from the services available and even from information. Family planning is not readily available, resulting in a very low contraceptive prevalence and high use of unsafe abortion. Fertility and maternal mortality are very high. Policy issues are poorly defined and rarely discussed.

We estimate that in much of South Asia and sub-Saharan Africa, as well as in the rural areas of the Andean countries in Latin America, this is a normal setting for most women. In some A settings, the population may be very dispersed (e.g., Andean areas), while in others (for example, Bangladesh) the population is very dense. This distinction will influence the program in terms of the means of communication with families and transport for referral.

<table>
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<tr>
<th>Priority Interventions:</th>
<th>Expand service delivery systems with family planning and abortion management as first line of offense. Efforts to empower women are needed to enable them to focus on themselves and to use services when needed.</th>
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### Policy Reform:

- Reach consensus on how to initiate family planning services and management of unwanted pregnancies.
- Determine how to reach women with primary women's health and to provide access to maternity services (including referral services).
- Revise regulations to enable providers located close to women to perform necessary obstetric tasks, especially in the periphery.
- Emphasize education for girls and delayed age of marriage.
- Initiate changes in non-health risk factors of women (e.g., education for girls; delayed age of marriage; credit access).
- Identify constituents in the community, health care system, and government for policy dialogue activities. Coordinated multi-sectoral committees are useful.
- Enhance policy dialogue through PVOs and NGOs with intervention models designed around government priorities and capabilities.

### Improved Services:

- Develop family planning services through:
  - Extension of local NGOs working in family planning;
  - Community-based distribution of a variety of contraceptive methods, including condoms and oral contraceptives;
  - Social marketing;
  - Health facilities for clinical contraceptives.
- Consider and implement one of the following maternity care outreach options:
  - Health centers staffed by certified midwives with provision of prenatal services at village level;
  - New Birth or Traditional Attendants trained to recognize danger signs and linked with support services at hospital or health center;
  - Maternity waiting home established near the hospital and supported by midwifery services.
- Upgrade skills of health providers at the district level hospital, and at health center level, to improve quality of family planning, management of unwanted pregnancy and maternity services and support with adequate equipment and supplies, or link peripheral services with a constant referral hospital (may have to be private).
- Introduce a maternal/perinatal audit to monitor quality and needs.
Setting A

Behavior Change:

- Educate mothers and influential (e.g., husbands, mothers-in-law) to understand the benefits of family planning, specifically the timing and spacing of pregnancy, the use of contraceptives and where to get them, and to recognize danger signs of pregnancy, labor and delivery and the puerperium, and the appropriate use of services.
- Strengthen the quality of interaction between client and provider by improving the interpersonal communication and counseling skills of clinic-based and outreach health care workers.
- Mobilize communities to organize for transport and referral in response to danger signs during the maternal period.
- Educate women and families regarding healthy practices during pregnancy, delivery, and in the postpartum period, specifically regarding family planning, use of safe birth kits, hygienic labor and delivery, need for tetanus toxoid immunization, nutrition and care of the newborn (e.g. breastfeeding, warming, and hygiene).
Description and Objectives

Save the Children/Bangladesh initiated this project in five villages in Nasirnagar Upazila in 1991. The objective is to demonstrate a community-based approach to improve maternal and neonatal health and nutritional status; to test methodologies and service linkages and make recommendations for reaching women who are at high risk; to develop and test educational materials; and to enhance and test information/surveillance systems. Identification of at-risk pregnancies, intensive interpersonal communication programs between SCF health and non-health staff and their clients (including husbands and mothers-in-laws) and strengthening the referral system are key components of this project.

Specific objectives include:

- Improved knowledge and practice among pregnant women, their husbands and mothers-in-law regarding maternal and neonatal health care and nutrition during pregnancy and postpartum
- Improved field-based prenatal care and management of normal deliveries and of simple complications during pregnancy, delivery and the postpartum and neonatal periods
- Greater referral of complicated maternal and neonatal cases to facilities capable of providing advanced care
- Reduction in the prevalence of some morbidities (e.g., severe anemia) and improve weight gain in pregnancy
- Information, education and communication materials for families and health care providers
- Training of families and health workers in use of IEC materials and protocols
- Establishment of Emergency Referral Funds in Women's Savings Groups
- Reduce maternal, perinatal and neonatal mortality

Drafts of case management protocols were developed and the TBA training curriculum revised to emphasize recognition of danger signs during pre-labor and delivery, and puerperium. These materials, finalized in Fall 1992, were used to train TBAs in September - October 1992. The counseling materials were pretested in the fall of 1992.

A Bangladeshi IEC company, Associates for Communication Options (ACO), was selected to develop messages and materials following on extensive anthropological research and a strategy workshop. These materials include motivational booklets for pregnant women, their husbands and mother-in-laws in prenatal care, safer birth techniques, breastfeeding and utilization of
services; action cards for families which highlight nutritional needs of pregnant women, iron consumption, safe birth techniques, breastfeeding; action cards for TBAs on safe births, danger signs and complications and post-natal care, and contact with SCF services. The IEC campaign was launched in February, 1993.

**Evaluation Design**

A quantitative pre- and post- knowledge, attitude and behavior survey was designed to capture patterns and changes of behavior among pregnant women, their husbands and their mother-in-laws (or elder female family members) regarding prenatal self-care, recognition of danger signs, cleaner home delivery, recognition of complication and linkages to SCF community-based services. The pre-test was conducted October 1992. A KAP baseline survey was conducted in late 1992. Major findings from the baseline are summarized on the attached pages. The post-test is scheduled for December 1993 after MotherCare ends in order to allow one year for the IEC intervention to have been fielded.

**Products**

Community Level Case Management Protocols
IEC Materials: Print materials for pregnant women, their husbands, their mother-in-laws, and their TBAs
Training Materials: TBA Curriculum

**Lessons Learned**

Affecting behavior

* Husbands and mother-in-laws influence a pregnant woman’s decision about nutrition and health care. Case study findings suggest that IEC campaigns could be maximized if other family members were targeted along with pregnant women.

* Exposure to IEC alone may not be enough to close the gap between knowledge. Also, the environment - poverty and lack of primary health care - may limit the impact of IEC interventions on some problems. Findings from the baseline KAP survey indicated that with respect to some topics, mothers had a relatively high level of knowledge even at the start of the project. For example, over 70% of mothers knew they should eat more during pregnancy although only about 50% had done so.

* To maximize gains in maternal and neonatal health, behaviors of health care workers as well as families must be modified. Finding from the baseline study suggested that some improvement in maternal health and nutrition could be achieved through modifying behaviors of pregnant women and influential decision makers in the family; this was especially true with regard to promoting attendance at prenatal care sessions, use of a trained TBA and willingness to accept referral to advanced care if necessary.
Improving services

* Provision of comprehensive maternal health care requires good field based case management as well as access to centers which can provide a higher level of care for obstetrical emergencies.

* Front-line workers should be capable and equipped to provide maternal health and family planning services.

* While TBAs can certainly be trained to manage normal deliveries, they should be able to refer a defined range of complications to an intermediate level of health worker. In our project area, TBAs are almost always illiterate, frequently elderly, and rarely compensated for their services. We should not expect to add too many new skills to their repertoire. While TBAs can certainly be trained to manage normal labor and delivery safely and cleanly, they will probable be able to manage only two complications on their own (simple breech and some types of excessive postpartum bleeding).

* Ensuring the sustainability of field-based case management capacity after the end of the project and improving the quality of maternal health services at referral facilities usually requires discussion with local and national government health officials, and sometimes with other NGOs.

Enhancing policy dialogue

* Dialogue should focus on improving access to primary health care (through the permanent posting of well-equipped Family Welfare Visitors in former SC impact areas); on improving referral networks (through developing transport systems and hospital admission policies for indigent patients); and improving obstetric and gynecological service capabilities at hospitals.

* Dialogue should occur among policy makers within the agency which proposes the implementation of maternal health interventions, to ensure that the agency is committed to the concept of comprehensive maternal health care.

* Influential community decision makers must be convinced of the importance to improve women’s health in order to support behavior change with challenges traditional beliefs and practices. Community women must be convinced of the importance of early referral for problems.

* Policy dialogue should involve major funders (bilateral and multilateral organizations, as well as some NGOs), so that they are aware of problems in maternal health and of feasible and effective interventions.

Main Findings from Baseline Knowledge and Practice Survey of Pregnant Women, their Husbands and their Mothers-in-law (Summary)
Prenatal Care

1. 75% of mothers had at least one PNC check up during their last pregnancy; 12% started PNC in the first trimester.
2. 66% of husbands think routine PNC is important. In cases where husbands thought PNC important, 92% of wives obtained PNC; in cases where husbands did not think PNC important, 53% of wives obtained PNC.
3. 71% of mothers-in-law think routine PNC is important.

Nutrition

1. 29% of mothers ate more than usual during their last pregnancy; 87% knew they should have eaten more. In cases where women did not eat more, 83% gave as their reason that they did not feel like eating and 16% that they did not have enough food.
2. 66% of husbands said that women should eat more during pregnancy, as did 87% of mothers-in-law.
3. 71% of mothers took iron at some point in their pregnancy; of these, 82% said they felt better after taking iron.

Problems during Pregnancy

1. Women reported that problems they had experienced most commonly during pregnancy were dizziness, abdominal pain, fever, leukorhea, and dysuria. The frequencies of reports of serious problems during pregnancy were as follow: bleeding--6%; severe headache--12%; facial edema--8%; blurred vision--35%.
2. Proportions of women seeking treatment for various problems were as follow: bleeding--43%; severe vomiting--48%; fever--62%; dysuria--56%; severe headache--57%; facial edema--56%; abdominal pain--75%.

Problems during Delivery

1. 18% of women reported prolonged labor; 3% malpresentation; and 5% other problems.
2. Most husbands and mothers-in-law would choose to go to the hospital or SC personnel (rather than the village doctor or traditional practitioner) in case of emergency.

Breastfeeding

1. 77% of mothers started breastfeeding on day 1; 83% gave food/liquid in addition to or other than breast milk on day 1.
2. 54% of mothers had given their infants food/liquid other than breast milk since birth (infants younger than 2 months old).
3. 73% of mothers knew that no food other than breast milk was needed in the first five months, but 40% felt their breast milk was not sufficient.
Family Planning

30% of mothers, 35% of husbands and 42% of mothers-in-law identified two or more years as the optimal interval between pregnancies.

(Findings are derived from surveys of 117 mothers who had delivered a live born infant within 2 months before the survey date; 114 of their husbands; and 77 of their mothers-in-law.)
Country Name: Bolivia

Project Name: Inquisivi "Warmi" Health Project

Collaborating Center: Save the Children (SC/Bolivia)

Principal Investigator: Lisa Howard-Grabman

Project Dates: July 15, 1990 - June 30, 1993

Population Size: 15,000 people in one district

Description and Objectives

The goal of this three year project is to reduce maternal and neonatal mortality and morbidity through affecting a range of behaviors that influence the outcomes of pregnancy and delivery as well as the care of the neonate in a setting that is extremely remote from any service infrastructure, has difficult terrain and where women are isolated from one another and from information. The major strategy used to achieve these objectives is the organization of women's groups to empower women to acknowledge the importance of their own reproductive, maternal, and neonatal health problems. Through the groups, women's knowledge and awareness of specific maternal and neonatal health problems is increased through a participatory approach and a community strategy is developed to allocate local resources to address the problems. The project is focused in the rural Province of Inquisivi and covers a predominantly Aymara population of 15,000 in a mountainous terrain of nearly 5,000 km². The SCF/Bolivia MotherCare project activities include: the development, implementation and analysis of a two year retrospective maternal and neonatal mortality case-control study in a pre-, post design; formation and strengthening of women's groups in 50 communities; the development and implementation of a problem identification and prioritization exercise known as the "autodiagnostico" which was carried out with 50 women’s groups; development of action protocols for women and parteras (birth attendants) based on maternal and neonatal health problems identified by the case-control study and the "autodiagnostico"; training of women and men in all communities on safe birth practices; development of a new cadre, a partera (birth attendant) and her training and linkages with hospital staff in La Paz; strengthening of referral linkages with local hospitals and a hospital in La Paz; preparation of 300 safe birth kits by women’s groups; education of selected communities on family planning methods; collaboration with SOPACOF and the San Gabriel Foundation, local NGOs, in the delivery of family planning services.

Evaluation Design

Pre-, Post- Case Control Study of Perinatal/Maternal Deaths (two year retrospective)
Qualitative Study (Participatory Evaluation)
Project Outputs/Outcomes

- 75 cases of perinatal/neonatal mortality (1988-1990: 639 total births, a mortality rate of 117 per 1,000 births), reduced to 31 cases of perinatal/neonatal mortality (1991-1993: 708 total births, a mortality rate of 44 per 1,000 births);
- 11 cases of maternal mortality (1988-1990: 639 total births) to 7 cases of maternal mortality (1991-1993: 708 total births);
- Fifty women’s groups were organized
- Forty eight women’s groups completed the autodiagnosis
- Twenty communities carried out a “planning together” exercise to develop strategies to solve maternal and neonatal health problems
- Increase in family planning acceptors of modern methods from an estimated 0% to 27% of women of reproductive age in communities where services were offered
- Increase in TT2 coverage in women who gave birth from 48% to 82% (7/92-6/93)
- Increase in at least one prenatal care visit from 45% to 77% (7/92-6/93)
- Increase in use of safe birth kits from 0% to 27% (7/92-6/93)
- Increase in use of trained birth attendants (including doctors, nurses, parteras, husbands, etc.) from 13% to 57% (7/92-6/93)
- Increase in immediate breastfeeding (within 1st hour) from 25% to 57% (7/92-6/93)
- Increase in immediate attention to the newborn (cleaning of nose and mouth, etc.)
- Forty two birth attendants (parteras) were trained in the field, at workshops, and at a week long practical and theoretical course in a La Paz Hospital
- SC/B signed an agreement with Hospital San Gabriel in la Paz to serve as its referral point in La Paz. Fees for SC/B referrals are discounted by 50%
- SC/B signed an agreement with a local NGO to provide family planning education and services to those communities that solicited them.

Products

- Autodiagnosis Guide -- Working Paper 16A
- Manual for PVOs Documenting the Projects’ Experience
- Final Evaluation Report
- Four Women’s Booklets on Pregnancy, Birth, Postpartum and Care of the Newborn
- "Partera" Manual
- Home-based Mother’s Record
- Insert for Safe Birth Kits
- Women’s Health Roster
- Final Report
- Five radio programs

Lessons Learned

The primary objective of this project has been to reach extremely isolated women with information about maternal and neonatal health and nutrition and through a community-based process, a community action cycle, to increase women's knowledge and capability to recognize and respond to their own and their infant's needs.
Affecting Behavior

* Organizing and strengthening women's groups is a useful strategy to adopt in settings where women are geographically, socially and culturally isolated.

* The "autodiagnosis" is a valuable tool for women to identify and prioritize their problems. On the other hand, experience has shown that it is a less useful and acceptable tool for men in the area of women's health.

* Family planning is a very strongly felt need expressed by both women and men.

Improving Services

* The MOH could not meet the high demand for family planning services due to a lack of trained personnel. This need was effectively met through a local NGO.

* "Parteras" are accepted and called upon when they receive good training and adequate support.

Enhancing Policy Dialogue

* The experience of this project to strengthen women's knowledge and capabilities opened the doors for other PVOs to explore their own possibilities, particularly in family planning services.

* Knowing where to focus one's "pitch" in a dialogue with policy makers and other donors is critical to projecting sound arguments in support of improved services for the mother and the neonate.
SETTING B
Setting B

Setting B has a public health service with hospitals, health centers/posts, and appropriate medically-trained staff that provide both family planning and maternal care, but women remain outside the formal service structure, using traditional birth attendants at the time of delivery. Contraceptive use may remain low. Many women, especially those who are young and unmarried, resort to unsafe abortion. As a consequence of this, and the low use of obstetrical and family planning services, birth-related mortality remains moderately high, both for women and newborns. While policy specifically aimed at improving women’s, maternal, and neonatal health and nutrition services may not exist, environments are receptive to policy reform and formulation due to an existing and functioning health infrastructure and communication network.

This describes the situation of women in large parts of rural areas in developing countries such as Guatemala, Zimbabwe, and Indonesia.

Priority Interventions: Enhance and formally coordinate available primary health care and hospital services.

Policy Reform:

- Ensure referral and supervisory linkages between community, health center and hospital levels with protocols detailing responsibilities at each level of care for family planning methods and management of obstetrics and neonatal care, including complications, and audits to ensure quality.
- Establish maternity waiting homes with community involvement either at the rural health center or district hospital level, or implement outreach by midwives to existing clinics (or health centers/posts) to provide prenatal assessments and postpartum care in the community.
- Delegate medical responsibilities (i.e., IUD insertion, manual removal of placenta, symphysiotomy) to accessible skilled staff and train, license, and equip "delegates" to carry out tasks.
- Assess costs to ascertain if these are creating access barriers and if resources could be reallocated to remove this obstacle.
- Enhance primary health care and/or postpartum care to integrate services aimed at improving the nutritional status of women, and preventing and controlling infections.
- Enhance family planning coverage, choice, and quality by providing a wide range of contraceptive services in a variety of sites (possibly through a postpartum program as well as family planning sites).
- Reach consensus on care for unwanted pregnancies.
- Broaden the resource base to include private organizations (e.g., NGOs) to work with marginalized groups.
- Promote mechanisms that stimulate the endorsement of, and early participation in, project interventions geared towards policy reform.

Improved Services:

- Upgrade the skills of providers in family planning and management of unwanted pregnancies, prenatal screening, early case detection of obstetrical and neonatal problems, nutrition screening and management, infection screening and treatment, and then management, counseling and appropriate referral when indicated, through refresher training and modifications of the basic training curriculum for health professionals.
- Ensure that these trained providers can reach women, or vice versa, through accessible, convenient, and appropriate outreach efforts (e.g., community sites, mobile efforts).
- Enhance primary health care to ensure high coverage for family planning, tetanus immunization, and appropriate iron folate supplementation for all women of reproductive age, and counseling to ensure a healthy start for infants (breastfeeding, warming, and hygiene).
- Ensure referral and supervisory linkages among the levels of maternity care through the placement of two-way radios if necessary and a means of effecting transport for referrals.
- Strengthen the drugs/equipment distribution system.
- Design special programs for adolescents, and other vulnerable groups, the very poor and isolated, indigent populations, and in the urban areas, for those living in the poorer sections.
### Setting B

**Behavior Change:**

- Strengthen the quality of interaction between client and provider by improving the interpersonal communication and counseling skills of clinic-based and outreach health care workers.
- Design a communications program that increases the use of primary health care, family planning and maternity care including prenatal, labor/delivery, and postpartum services, as well as improve awareness of danger signs during the maternal/neonatal period and appropriate use of available services.
- Mobilize communities to organize appropriate transport and referral in response to danger signs during the maternal period.
- Educate mothers and families regarding healthy practices during pregnancy, delivery and in the postpartum period, specifically regarding family planning, use of safe birth kits, hygiene during labor and delivery, need for tetanus toxoid immunization, nutrition, and care the newborn.
Description and Objectives

MotherCare has joined the Federal Ministry of Health, Primary Health Care Division (FMOH, PHC) in efforts to address the problems related to the high maternal and neonatal mortality in Nigeria by strengthening the quality of maternal care services, particularly prenatal/labor and delivery services. To this end, the project is upgrading knowledge and skills of clinical midwives in responding to obstetrical emergencies and in counseling clients about the complications which might arise during pregnancy and the appropriate course of action to be taken by the woman and her family. The project objectives are to:

- influence national policy in the practice and quality of maternal care, including delegation of responsibility;

- improve the quality of care through in-service training of midwives in the management of critical obstetrical complications;

- influence community practices and appropriate and timely use of maternal care services through a community-based communication strategy;

- lay the groundwork for the adaptation of the training curriculum by schools of midwifery as part of the pre-service training curricula;

- establish the foundation for a comprehensive national breastfeeding strategy.

The first phase (demonstration period) of this project is occurring in two states, Bauchi in the Northwest and Oyo/Osun in the Southeast, and includes the establishment of two hospital training centers (one at Bauchi Specialist Hospital and one at Adeoyo Maternity Hospital, Oyo) for training clinical midwives practicing in those states. A total of 10 master trainers, 5 for each state, and 80 clinical midwives or 40 per state, were trained in life saving skills (LSS) and Interpersonal Communication skills (IPC) at the State Training centers and 126 midwives
employed at the two training centers received an abbreviated training during the site preparation phase (i.e. before the LSS courses began). An additional 263 midwives from 14 subcenters (who were not trained at the Bauchi and Oyo training centers) received "on-the-job" training from their midwives who had attended the training in prenatal risk assessment, partograph, suturing, infection control, management of the third stage of labor from midwives at their institutions who had attended the LSS training. In order to ensure that the midwives are encouraged to use these skills post training, the project staff sought the support of state hospital physicians and hospital matrons. To that end, 44 physicians received an update in the management of obstetrical emergencies and interpersonal communication skills and 60 chief matrons attended a seminar which focused on the support of the LSS trained midwives, particularly drug and equipment logistical systems, maintenance of records, and interpersonal communication skills. In addition, 44 TBAs (20 Osun; 24 Bauchi) have received an orientation to the LSS and have received training in IPC and infection control.

A National Policy Meeting was held in June, 1992, for representatives from the Federal Ministry, states governments, the state training centers and representatives from the medical professional organizations and donor agencies. The purpose of this meeting was to explain the project and reach consensus and commitment from the FMOH and the states to support the midwifery training intervention. The training intervention began with a training needs assessment and the development of the training curriculum (based on the Life Saving Skills Manual and the findings of the assessment) in July, 1992. The staff at the training sites working in prenatal care and labor and deliver attended modified LSS courses and the TOT for 10 master trainers was held October - November, 1992. The midwifery training courses continued at each training site through June, 1993. The post tests conducted at the end of LSS training showed that 58 of the 80 trained scored 70% and above. Those who scored under 70% continue to strengthen their skills with assistance from the LSS midwives at their center and/or from the LSS trainers.

Those midwives who were trained at the two centers have returned to their subcenters and have initiated on-the-job training courses in their institutions. Several core trainers, the training coordinators and the MotherCare Resident Advisor have conducted monitoring visits to identify the degree to which the midwives performance have improved since training and to identify areas where they might need addition assistance, either in upgrading their own skills and/or training their midwives colleagues at their institution.

Simultaneous to the training activities, the Subcontract for the IEC qualitative research was awarded to a Nigerian research agency, Public Opinion Polls (POP) and research was conducted in Oyo/Osun and Bauchi from June through September, 1992. The POP study attempted to understand the flow of information within the community and the family decision-making processes that govern the utilization of traditional or formal medicine in the event of obstetrical complications. The data revealed how cultural taboos and beliefs and socioeconomic forces often conspire to place a woman at a disadvantage from the start of pregnancy and highlighted the difference in perceptions and practices between tribes. The data pointed out that prenatal care attendance is not widespread, with underutilization blamed on problems with transportation and the cost of drugs and supplies. On the other hand, some perceived prenatal care as an insurance against complications during delivery and may create overconfidence about the prospects for a healthy home delivery. Misperceptions about the early warning signals of obstetrical
complications were found to be serious contributors to delays in seeking emergency care, where and when available.

The research findings were reviewed and the IEC strategies were planned for each state during the Strategy Meeting hosted by FHS/Population Communication Services in November/December 1992. The IEC campaigns are scheduled for launch in the focus states in summer, 1993. The project will draw to a close with the final Policy Meeting which is tentatively scheduled for late September, 1993 (depending on the political situation). During this meeting, information will be shared regarding the effect of the midwife training on the quality of maternal care services, the cost of this intervention and the impact of the state level IEC campaigns on women's (and families) responses to risk and complications, self care and the appropriate and timely utilization of services. The plan to expand these interventions to other states will be put forward at this meeting.

Since the project staff have been concerned that political unrest might cause the Policy Meeting to be postponed, they have arranged the results of the training to be aired on TV and radio in both states - in English, Hausa and Yoruba. The networks donated this air time.

**Evaluation Design**

The evaluation framework is based on a principle question - Can maternity services be improved by teaching life saving skills to clinical midwives? This question is explored by measuring the impact of training and midwife performance upon:

- the skills competency and knowledge of the midwives post-training;

- the increased proportion of midwives practicing LSS post-training upon the quality of services by institution.

**Tools/Information Source used include:**

1) Pre and Post-Tests during LSS training and Case Studies post-practicum
2) Incidence Reporting Form and Support Visit Check List
3) Partograph and Risk Assessment Practice Review
4) Duty Roster and Delivery Room Register and Monthly Statistics
5) Client Exit Interviews - prenatal and immediate postpartum questionnaires
6) In-depth Interviews with Hospital Management

**Project Outputs/Outcomes**

- 80 midwives trained in full Life Saving Skills and Interpersonal Communication skills
- 122 midwives (not trained in LSS) received training in Interpersonal Communications
- 263 midwives (not trained at the State Training Centers) received select LSS skills from midwives at their institution who had attended the training
- 44 doctors received refresher training in management of obstetrical emergencies and interpersonal communication and counselling
- 60 Chief Matrons/matrons would have had an update in support of the LSS midwives,
logistical support of the program, IPC skill and maintenance of maternity records

- 44 TBAs (20 Osun; 24 Bauchi) received an orientation to LSS and were trained in IPC skills and infection control
- State MotherCare Project Committees were formed
- National technical and Policy advisory Committees were formed
- National policy and strategies on breastfeeding developed
- One national and three state policy meetings held

Unfortunately, due to the timing of the project and the political crisis in the country, there has only been one monitoring visit possible to the training centers and selected subcenters. Midwives are using skills trained in, supportive systems for drugs and bloods are in place, aseptic techniques are carried out universally, and trained midwives have returned to their institutions and have initiated on-the-job training. In the event that quality standards are not being maintained, such as aseptic techniques, the master trainers have spent several days at that center to improve performance.

**Products**

- Training Curriculum: Interpersonal Communications, including Counselling Skills for Midwives
- MotherCare Nigeria Maternal Healthcare Project Qualitative Research: Literature Review -- Working Paper 17A
- MotherCare Nigeria Maternal Healthcare Project Qualitative Research -- Working Paper 17B
- Final Report

**Lessons Learned**

This project has focused on improving the quality of services by upgrading the skills and practices of clinical midwives in two targeted states, at the same time seeking information regarding health seeking behavior and health provider behavior through the conduct of formative research in the target states and the development of messages for the community and interpersonal communications and counselling skills training for the midwives. Lessons learned from the project are as follows:

**Affecting Behavior**

* The benefit of integrating maternal health messages with on-going state-level family planning campaigns.

* Involvement of state functionaires in the design of the state IEC strategy elicits project ownership and enhances successful implementation.

* The strength of the IPC curriculum in promoting constructive communications among the levels of providers within the formal health care system and in promoting linkages between the formal and traditional systems.
Improving Services

* Establishment of protocols and training midwives to use protocols for prenatal risk assessment and the use of the partograph has enhanced the management of maternity cases by midwives.

* The cost of maternity care can be a barrier to utilization, particularly when the service is perceived to be of questionable quality.

* Life Saving Skills training is costly in its present form, however this issue has to be more closely studied, factoring in an analysis of lives saved and the multiplier effect of this training.

* Initial findings indicate that the quality of care has improved by upgrading midwives’ skills and providing the essential support systems - drugs and equipment- for midwives to carry out these skills.

* Ensuring quality services goes beyond training clinical midwives - physicians, chief matrons must also be targeted for orientation and skills and knowledge update; drugs and supplies logistical systems and blood bank must also be in place.

Enhancing Policy Dialogue

* For a project to be successful, it is important to solicit support, endorsement and commitment at the outset of the project from key policy makers from different levels of government - national, state and local - as well as the involvement of experts in the field from universities and professional associations.

* It is equally important to identify and target those who might block policy change and/or formulation. For example, physicians, matrons and peers if not included in the process and skills update, could constitute an impediment to the smooth and lasting implementation of newly acquired emergency obstetrical care practices.

* Recognition of perceptions of both the consumers and the providers is required to develop meaningful policies regarding maternal services.

* National and state budgetary allocations towards the interventions - policy meetings, upgrading facilities, assuming responsibility for logistical support systems paths the way for project sustainability - is important for ownership.
Country: Uganda

Project: Ugandan Life Saving Skills Training for Midwives

Collaborating Center: The Ministry of Health

Resident Advisor and Ugandan Counterpart: Sandra Buffington and Anne Otto

Period: November, 1991 - August, 1993

Population Size: Approximately 500,000

Description and Objectives

The goal of this project is to improve the quality of maternal care in Uganda by updating and strengthening midwives' (government and private sector midwives) skills and knowledge in the areas of risk assessment; case management, using the problem solving approach; performance of life saving skills. The specific project objectives are to:

- heighten awareness and seek the endorsement of policy makers, medical and midwifery professionals to upgrade the standards for midwifery practice;

- update MCH protocols for midwifery performance related to maternal and neonatal risk assessment and practice of life saving skills;

- train and establish a national network of 16 master trainers and a minimum of 80 midwife tutors and clinical instructors in the conduct of life saving skills;

- lay the groundwork for the adaptation of the in-service training curriculum to a pre-service sign which can be integrated into midwifery training school curricula.

The first six months were spent in project start up activities, including orientation and discussions at national and district levels and training site preparations. The Ugandan Life Saving Skills Project (ULSS) was officially launched by Dr. Florence Ebanyat, Assistant Director Medical Services (ADMS) at the Jinja Midwifery School in June, 1992. The first two training centers were established at St. Francis Hospital in Nsambya and Jinja Government Hospital in Jinja. Both centers were brought up to the standard requirements for quality care. Baseline assessments were completed and the Life Savings Skills Training Manual for Midwives was adapted for use in Uganda. Some of the curriculum modifications included the use of the WHO partograph, a revised prenatal risk assessment form and the removal of the session on the use of vacuum extraction (only midwives working in hospitals will be authorized to use the vacuum extractor).

Protocols have been updated and incorporated into the Midwives' Handbook and Guide to Practice. This handbook, developed in committee under the leadership of the Registrar of
Uganda Midwives and Nurses Council (UMNC) with assistance from a LSS consultant, creates a legal basis of support for the midwives’ expanded role, provides information for in-service and pre-service training of midwives and offers a theoretical midwifery update for all of Uganda. This handbook will be distributed at cost to all midwives and Schools of Midwifery through the UMNC.

An Advisory Committee made up of MCH leaders and educators has been appointed and meets quarterly. One of the first recommendations from this committee was the need to inform medical officers and obstetricians who will receive referrals from LSS trained midwives. As a result of this recommendation, these "referral" medical officers attended a training seminar in mid-November, 1992.

The first training course (TOT) on Clinical Life Saving Skills (LSS) for the master trainers was conducted in June, 1992. A total of 16 master trainers have been trained as trainers of LSS and 160 midwives have been trained in LSS, doubling the project goal.

The midwives trained represent the public and private sectors and include twenty midwifery tutors from the 14 midwifery schools in Uganda (i.e. each school now has at least one LSS trained tutor). The tutors’ participation in the LSS courses is deemed necessary for institutionalization of the LSS into the pre-service midwifery curriculum. At this point selected topics have been integrated into the pre-service midwifery curriculum, including prenatal risk assessment, monitoring labor according to the partograph, active management of the third stage of labor and newborn resuscitation.

In addition to this major training effort, orientation conferences have taken place for 50 supervisors of LSS midwives and 530 staff in hospital maternities, including all of the hospitals in the ULSS districts. All ULSS district hospitals are using the partograph for monitoring labor.

The Assistant Director of Medical Services has requested that all midwives in Uganda attend LSS training and has allocated funds to cover this training over the next five years. Additional funds have also been set aside to establish a third training site this year and a fourth site is being prepared through the Italian Mission hospital in Kitgum.

Several important steps have been taken which will contribute to the sustainability of this project. The Training Coordinator has worked very closely with the Resident Advisor during the life of this project and she is now well prepared to take over the administrative and clinical supervision responsibilities heretofore assumed by the Resident Advisor. The Ministry has also assigned another midwife to join the Training Coordinator to manage the project. Throughout this project, a great deal of effort has been paid to the production and supply of local equipment. For example, the midwives aprons, the fetal scopes and other items are now made and available locally. Midwives have been trained to recycle gloves according to aseptic standards. All of these activities will also contribute to a reduction in the cost of the project.
Evaluation Design

The evaluation design focuses on the outcome of training: midwife performance, the training materials and the instructional process.

Due the cost and time needed to evaluate the midwives' performance post training, a sample of 20 LSS midwives were observed three months post training and their performance was evaluated according to specific indicator skills (see the attached chart of scores - Preliminary Clinical Evaluation Post Training).

Tools/Information Source include:

1) Pre and Post-Test - immediately before and after the training course.
2) Training Check List - for Trainers' use to measure skill competency during training.
3) Reference Log Book - evaluation book maintained by the LSS trained midwives which serves as an evaluation book for follow up of the LSS trained midwives.

Project Outputs/Outcomes

• An assessment tool was developed to evaluate both knowledge and performance by interview and observation of 105 midwives prior to identifying continuing education needs.
• An Advisory Committee was formed to advise the Ministry of Health for LSS activities.
• 50 LSS midwife supervisors participated in orientation conferences.
• 530 staff in hospital maternity units were trained in use of the partograph.
• All hospitals in the LSS Districts are using partographs for monitoring routine labor, early management of prolonged labor cases and increasing awareness in routine midwifery care.
• Ugandan specific revisions were made to the LSS manual for Midwives, the prenatal risk assessment form, the partograph, and reference logbook.
• The Midwives Handbook and Guide to Practice was updated; 2000 copies have been printed and are in great demand.
• 16 midwives were trained as LSS trainers and provide on-the-job LSS training for midwives.
• 160 midwives have received LSS training in both public and private sectors.
• 25 midwifery tutors from the 14 midwifery schools were trained in LSS.
• Selected LSS topics are integrated in the pre-service midwifery curriculum including risk assessment, monitoring labor progress using the partograph, active management of third stage, and newborn resuscitation.

Products

• Reference Logbook
• Protocols: Midwives Handbook and Guide to Practice
• Trainers Guide and Timetable
• LSS Kit for Midwives
Training and Practice Forms:
- Needs Assessment Tool - site inventory
- Follow Up Visit Form
- Prenatal Risk Assessment Form
- Competency of LSS Midwives using Indicator Skills
- Training Skills Evaluation Checklist
- Training Management Forms

Final Report

Lessons Learned

As mentioned previously, the goal of the Uganda project is to improve the quality of maternal care by strengthening the knowledge and skills of government and private sector midwives through a competency based in-service training which focuses on the management of obstetrical emergencies. This project is also making successful strides towards the integration of aspects of the Ugandan Life Saving Skills training curriculum into pre-service training and into the BSN curriculum.

Thus the major program components are designed to improve services and to enhance policy dialogue. Lessons learned include:

Affecting Behavior

* Midwives using the problem solving process in the identification and management of obstetrical complications improved the quality of maternal and neonatal services.

Improving Service

* Pre-service education is a key factor to the success of the Life Saving Skills Training, coupled with continuing education for practicing midwives and including follow-up and supervision.
* Registered midwives can achieve skills competency in the active management of the third stage of labor, bimanual compression of the uterus, infant resuscitation following a 14 day clinical training course.
* The package of skills in the Life Saving Skills Training can be reduced to include only those problems which the midwives encounter most frequently. Focusing the training on the most prevalent conditions will enable midwives to strengthen their competencies in addressing these problems and should all reduce the cost of training.
* Midwives need supervision and management skills training in addition to clinical skills.
* There is some evidence that training and supervision can improve providers’ attitudes, however, little is really understood about providers’ attitudes and expectations.
* Referral systems are complex systems requiring a functioning health infrastructure: trained providers and a functioning referral center as well as available and affordable transportation, client education and compliance
* Formation of an Advisory committee including representatives from the medical, academic and political sectors with the defined role to provide oversight and input into the project can have a major effect on the direction and sustainability of the intervention. This involvement needs to occur at the outset of the project.

**PRELIMINARY CLINICAL EVALUATION POST TRAINING**

Clinical evaluation post training is very time consuming and costly, because one must actually observe performance of skills. The following results are based on a sample of 20 LSS Midwives evaluating listed indicator skills. This is an affordable, simple, initial approach for LSS Trainers or supervisors to evaluate some of the services provided.

The skills were evaluated pre and post training. The "sample" LSS Midwives represent both hospital, health center and private settings. Each LSS Midwife from this sample "averaged" 181 prenatal contacts and 35 deliveries in a month. The percent (%) indicates that the equipment or supply was available or skill was performed 100%.

**PRELIMINARY CLINICAL PRE-POST TRAINING EVALUATION, UGANDA 1993**

<table>
<thead>
<tr>
<th>INDICATOR SKILL PREGNATAL ASSESSMENT</th>
<th>PRETRAINING %</th>
<th>POST TRAINING %</th>
</tr>
</thead>
<tbody>
<tr>
<td>-- Prenatal form used</td>
<td>50%</td>
<td>90% *</td>
</tr>
<tr>
<td>-- Blood pressure taken</td>
<td>73%</td>
<td>100%</td>
</tr>
<tr>
<td>-- Urine tested (protein)</td>
<td>0%</td>
<td>80% *</td>
</tr>
</tbody>
</table>

**MONITOR LABOR PROGRESS**

<table>
<thead>
<tr>
<th></th>
<th>PRETRAINING %</th>
<th>POST TRAINING %</th>
</tr>
</thead>
<tbody>
<tr>
<td>-- Partograph available (one hospital pre-LSS)</td>
<td>0%</td>
<td>100% *</td>
</tr>
<tr>
<td>-- Vaginal exam performed every</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 hours-active stage of labor</td>
<td>0% (90% only on adm)</td>
<td>70% *</td>
</tr>
<tr>
<td>-- Fetal heart counted at least 2 hourly</td>
<td>0%</td>
<td>80%</td>
</tr>
<tr>
<td>-- Contractions felt &amp; evaluated</td>
<td>0%</td>
<td>75%</td>
</tr>
</tbody>
</table>

**DELIVERY (sepsis)**

<table>
<thead>
<tr>
<th></th>
<th>PRETRAINING %</th>
<th>POST TRAINING %</th>
</tr>
</thead>
<tbody>
<tr>
<td>-- Decontaminate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- delivery bed</td>
<td>10%</td>
<td>95% *</td>
</tr>
<tr>
<td>- delivery instruments</td>
<td>75%</td>
<td>80% *</td>
</tr>
<tr>
<td>-- Recycle gloves</td>
<td>25%</td>
<td>70% *</td>
</tr>
</tbody>
</table>

**ACTIVE MANAGEMENT OF THIRD STAGE OF LABOR**

<table>
<thead>
<tr>
<th></th>
<th>PRETRAINING %</th>
<th>POST TRAINING %</th>
</tr>
</thead>
<tbody>
<tr>
<td>-- Oxytocic available &amp; stored properly</td>
<td>25%</td>
<td>95% *</td>
</tr>
<tr>
<td>-- Oxytocic given before delivery of placenta</td>
<td>0%</td>
<td>85% *</td>
</tr>
</tbody>
</table>

**EPISIOTOMY REPAIR**

<table>
<thead>
<tr>
<th></th>
<th>PRETRAINING %</th>
<th>POST TRAINING %</th>
</tr>
</thead>
<tbody>
<tr>
<td>-- Needle holder used</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>-- Dissecting forceps</td>
<td>0%</td>
<td>50%</td>
</tr>
<tr>
<td>-- Lignocaine</td>
<td>0%</td>
<td>60% *</td>
</tr>
</tbody>
</table>

*Note:* Each of these starred (*) procedures are dependent on CONSUMABLE SUPPLIES, such as soap, chlorox, forms, suture, lignocaine and oxytocics.
Country: Indonesia

Project: Improved Iron Folate Tablet Distribution to Alleviate Maternal Anemia in Two Subdistricts of the Indramayu Regency

Principal Investigator: Dr. Budi Utomo: August 15, 1990 - June 30, 1992
Dr. Endang Achadi: July 1, 1992 - February 15, 1993

Collaborating Center: Center for Child Survival, University of Indonesia

Period: August 5, 1990 - November 15, 1992

Population Size: 10,000 households total in both subdistricts (treatment and control)

Description and Objectives

This study was designed to test the effectiveness of an experimental community-based iron folate distribution system to increase the availability and thus prenatal consumption of iron folate tablets, compared to the standard clinic-based distribution system. This entailed assuring the adequacy of iron folate tablet supplies, the distribution of tablets by the traditional birth attendants (TBAs) to the pregnant women from the TBAs home, and maintaining a supply of such tablets in the TBAs' homes in the treatment area, Gabuswetan subdistrict of Indramayu.

Nine months later, an IEC campaign was launched in both the control and treatment areas to encourage women to use services and to take iron folate tablets during pregnancy.

The simple intervention of making iron folate tablets available to the TBAs in the community to pregnant women via assuring an adequate supply of tablets available to the puskesmas (clinics) for distribution and by TBA distribution significantly increased the availability, coverage and consumption of iron folate tablets. IEC to increase use of services and iron folate tablets did not significantly increase coverage and compliance above and beyond the effect of the distribution system. However, in the control area (Sliyeg), both coverage and compliance with the iron folate regime were significantly increased after the IEC campaign.

The results of the project are summarized in the following table. Women in the study area not exposed to the experimental TBA distribution of the tablets (Sliyeg) increased the average and total number of iron tablets they consumed per month after the social marketing program than before. This difference was highly significant (p < 0.001). These differences are mediated in Sliyeg by reducing the proportion of women who take no iron folate tablets during pregnancy. The improvement in average monthly tablet consumption or total consumption of tablets was minimal in women who took tablets (Model 4), indicating that the greatest impact was in women who didn’t initially take tablets.

The improvement in average and total number of tablets taken after IEC was limited in the area
where TBAs distributed iron-folate tablets to pregnant women (Gabuswetan). These differences were minimal in Gabuswetan as coverage became almost universal due to the TBA distribution of tablets prior to the IEC.

Although the IEC did not have significant effect above and beyond that of the TBA distribution, both interventions fell short of accomplishing daily or almost daily consumption of the tablets. These results imply that promotion of TBA tablet distribution and an IEC focused solely on increasing compliance (recommended daily consumption) could be an effective strategy for improving iron-folate status in Indonesia, and elsewhere where anemia is prevalent.

### EFFECT OF INTERVENTION ON IRON-FOLATE TABLET CONSUMPTION

<table>
<thead>
<tr>
<th></th>
<th>SLIYEG (CONT)</th>
<th>GABUSWETAN (INT)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PRE</td>
<td>POST</td>
</tr>
<tr>
<td><strong>Average Number of Tablets Taken in A Month</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 1</td>
<td>4.80</td>
<td>10.80***</td>
</tr>
<tr>
<td>Model 3</td>
<td>5.74</td>
<td>10.63***</td>
</tr>
<tr>
<td>Model 4</td>
<td>25.80</td>
<td>28.73*</td>
</tr>
<tr>
<td><strong>Total Number of Tablets Taken Over Pregnancy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 1</td>
<td>24.48</td>
<td>48.54***</td>
</tr>
<tr>
<td>Model 3</td>
<td>26.39</td>
<td>47.69***</td>
</tr>
<tr>
<td>Model 4</td>
<td>44.84</td>
<td>54.95(ns)</td>
</tr>
<tr>
<td><strong>Proportion of Pregnant Women Taking Iron-Folate Tablets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 1</td>
<td>64%</td>
<td>88%***</td>
</tr>
<tr>
<td>Model 3</td>
<td>53%</td>
<td>86%***</td>
</tr>
</tbody>
</table>

Statistical comparisons are Pre-Post within each intervention area.

(ns) not statistically significant

* p < 0.05

*** p < 0.001

Model 1: Unadjusted, except for the number of interviews upon which the outcome variable is
based (for average number of tablets taken and proportion taking no tablets) or for gestation at identification of pregnancy (for total number of tablets taken).

Model 3: Model 1 plus the following covariates: electricity in the home, ownership of radio, motorcycle, size of household land, whether the study participant had any formal education, had planned the current pregnancy, had a live birth as her previous pregnancy outcome (for multiparous women), was shorter than 145 cm, and maternal age, the study participants frequency of consuming animal and vegetable iron rich foods, and foods and beverages that promote or inhibit iron absorption in the week prior to interview.

Model 4: Model 1 only for women who took tablets (excludes those who took none), for the outcomes of average number of tablets and total tablets taken.

**Outputs/Outcomes**

- Developed IEC materials (radio spots, posters, banners, stickers, counseling cards, action cards, leaflets, tin plates for TBAs and certificates for health volunteers) based on findings from formative research
- Conducted an IEC campaign
- Trained 3 doctors and 10 midwives in use of IEC materials. They, in turn, trained 80 TBAs and 100 health volunteers in the use of the materials.
- Midwives, TBAs and health volunteers provided counselling on anemia and iron-folate supplementation
- Initiated a new method of iron-folate tablet distribution through TBAs - TBAs received and distributed iron-folate tablets to their pregnant clients from their homes
- Trained 10 research interviewers and 2 supervisors on anemia and iron-folate supplementation

**Evaluation Design**

Longitudinal Surveillance, Treatment and Control Areas

**Products**

Formative Research: Question Guides, Data Analysis, Final Report

Monitoring and Evaluation Tools: Indramayu Pregnancy Module D, Anthropometric Cross Sectional Survey


Papers:  

Improved Iron Folate Distribution to Alleviate Maternal Anemia. Gour Dasvarma prepared this April 1992 as an introductory chapter of the final report on the MotherCare Project. However, the format for the final report was changed by MotherCare at a later date and the next chapters were not written.

The Effectiveness of Increased Availability on the Ingestion of Prenatal Iron Folate Tablets in Two Subdistricts of Indramayu Regency, West Java, Indonesia. Pandu Riono and Budi Utomo.

Social Marketing of Iron Tablets in Indramayu: the Role of Traditional Birth Attendants in Improving Distribution. Teguh Budiono and Carolyn Hessler-Radelet (Paper will be submitted later).

Nutritional Status of Pregnant and Nonpregnant Women. Endang L. Achadi, Mary Jo Hansell and Nancy Sloan.

The Impact of Women’s Nutritional Status on Pregnancy Outcomes. Endang Achadi, Mary Jo Hansell, Mary Ann Anderson.

Utility of Sample Registration System for the Detection of Early Pregnancy and Studying Maternal Morbidity. Budi Utomo, Pandu Riono, Gour Dasvarma and David Leon. (An earlier version of this paper was presented at the Annual Meeting of the National Council for International Health, Washington, DC, 1991.)
Country: Indonesia

Project: East Java Safe Motherhood Project

Collaborating Center: R. S. Soetomo Hospital
Surabaya, Indonesia

Principal Investigator: Dr. Poedji Rochjati

Period: August, 1992 - July, 1993

Population Size: Probolinggo (treatment area) - 1.1 million
Pasuruan (control area) - 1.1 million

Description and Objective

The aim of this ambitious project is to reduce maternal and perinatal mortality by half within one year. Pregnant women in half of one kabupatan in East Java (12,000 births per year) will be assessed for risk of poor outcome by cadres of the PKK, a women’s organization, and referred for prenatal care to certified midwives. After further assessment by the midwives, the women will be instructed as to the appropriate delivery site and provider. Using this same methodology, a pilot project in a small area near Surabaya, showed a reduction in perinatal mortality of half over the period, April 1988 through March 1989.

The present project will draw from the pilot project for training, risk screening and educational materials and will work with certified nurse-midwives in the Puskesmas (Health Center), to provide the risk screening and with staff of a class C district hospital for referrals. In six of the 12 study subdistricts (Kecamatan), transport for obstetrical emergencies will be reimbursed. A control area in another district (Kabupatan) has been selected which continues with its normal government maternal health care program. The cost-effectiveness of these interventions, one of the first such studies, is also being carried out.

The project contract was signed and project initiated June 1, 1992. A census of the study and control areas was made followed by a maternal and economic survey carried out by local health workers and primary school teachers. Implementation of the program began following training of the PKK and Puskesmas staff in the study area and development of the transport systems for referral, in July, 1992. Maternal and perinatal deaths have been followed up by research and health personnel. A post-survey provides the results of the intervention, augmenting the information collected by the PKK workers on the screening tool that is filled out for each pregnant woman in the study area. Analysis and final report writing are scheduled for late fall, 1993.
Evaluation Design

Intervention/Control areas, Pre-, Post- Surveys

Project Outputs/Outcomes

- Community-based Predictive Prenatal Risk Scoring System use by PKK for 83.5% of pregnant women (6010 of 7185 women).
- Use of emergency transportation subsidy for timely referral, when needed.
- A community based Maternal and Perinatal mortality follow-up, which can be used for the improvement of future maternity care.
- Cost analysis in the maternity care by women/family and Health Institution for future planning of cost delivery supported by community and government.
- Training on Risk Scoring System (one day)
  - 502 PKK and 375 TBAs
  - Heads and staff of the District and Municipal Health Services in Probolinggo
  - OB/GYN specialists, HC doctor (18), HC midwives (21), village midwives (16), Head of Subdistrict (27), related health officials (14).
- Developed IEC materials
- Presentation on the Risk Approach Strategy with the community based predictive prenatal scoring system to national level: Indonesian OB/GYN Association meeting. Provincial level: Annual meeting for Obstetricians, Pediatricians and the Heads of district MCH section; Family Welfare Movement.

Products

- Final analysis and write-up of pre-post survey, risk scoring, maternal and perinatal audit expected end of 1993 or early 1994.
- Article:
  - The Use of a Risk-Based Approach to Screen and Refer by Community Volunteers to Reduce Poor Reproductive Outcome - Dr. Poedji et al. (expected early 1994)

Lessons Learned

The objective of this study is to decrease maternal and perinatal mortality by one-half, through the appropriate and timely use of maternal care services and as enabled through a predictive prenatal risk scoring system and a subsidized transportation system. Therefore, the lessons learned in this project concerns a better understanding of the implementation of a community-based risk approach strategy.

Affecting Behavior

* The PKK were effective in communicating with and altering the behavior of pregnant women, and were successful in establishing a trusting relationship.
* The color code attached at the front door of the mother’s house is a practical communication tool for the TBAs with regard to appropriate birthing attendant and site.
* Deliveries by TBAs remain high even for those identified as high and very high risk because of the lower cost of services from the TBAs and the long postpartum services provided by the TBAs as well as their involvement in cultural ceremonies.

* Information of risk factors to the mother and family can make them afraid. More time is needed for additional and repeated information.

**Improving Services**

* The early detection of mothers at risk gives more time to educate the mother and family and help them to plan for a safe delivery as well as save money for anticipated expenses.

* Communication and information through a two-way Radio Medic already installed in the health centers and the hospitals gives hospitals time to prepare for the referral.

* Transportation subsidies ensure that the women can reach the appropriate level of care in the time. However, women from low socio-economic families still refuse referral because of the cost of hospital care. The cost of transport is only one-tenth the cost of a cesarian section.

* Maternal mortality was 329/100,000 in the pre-survey and 300/100,000 in the intervention period. Perinatal mortality was 34.5 and 42.7 respectively. The rise in perinatal mortality may be due to better reporting because of the risk scoring surveillance system. The very small decrease in maternal mortality needs to be interpreted with caution as only 84% of women were covered by the risk scoring system.

**Enhancing Policy Dialogue**

* The involvement of the local government leaders can mobilize local officials to give more support for field activities.

* The sustainability of this system at the district level still needs further support by the provincial and national levels in terms of policy and budget allocations.
Country: Indonesia
Project: A Pilot Study of a Perinatal Regionalization Network
Collaborating Center: University of Padjadjaran
Co-Principal Investigators: Dr. Anna Alisjahbana and Dr. James Thouw
Period: January 2, 1991 - September 30, 1993
Population Size: 87,000 people (1989) -- Tanjungsari

Description and Objectives
The operations research project takes place in the subdistrict of Tanjungsari (pop. 90,000) in West Java and in a comparable control subdistrict, Cisalak (pop. 43,000). The intervention includes appropriate care during pregnancy, intrapartum and the postpartum periods, with screening and referral based on complications associated with perinatal and maternal mortality found in the previous studies in Tanjungsari. At the village level, ten birthing homes (polindes) where women can go for prenatal care screening, referral and normal birthing, were developed, some in TBAs’ homes, some standing alone, but all provided through community efforts. Improved communications (a 2-way radio) link the homes to the higher levels of care -- 3 health centers and a referral hospital. An ambulance is ready to provide transport from the birthing huts to health centers or the hospital. Continuous training provided for both doctors and midwives from the health centers has increased and improved their knowledge, attitudes, practices, and skills regarding high risk women (during the pregnancy, intrapartum, and postpartum periods) and neonates. A communications strategy to improve the awareness and responsiveness of women, their families and communities in intervention villages concerning recognition of danger signs and referral, and the benefits of using preventive services, specifically prenatal care, was implemented in late November, 1992. Perinatal and maternal audits initiated at hospital and community level have provided a means to bring the levels of the health system together to understand the process of improving maternal health.

Evaluation Design
Longitudinal Surveillance, Intervention and Control Areas

Project Outputs/Outcomes
- Adapted existing training materials and action cards for mother and child to be completed by health care providers.
- Adapted risk score card for risk identification and classification to be used by village midwives and TBAs.
- Incorporated into the interventions a problem action guide, handbook and referral booklet for TBAs previously developed.
• Developed case management guidelines for doctors and midwives at birthing homes, health center and hospital.
• Developed several social marketing materials including posters, leaflets, action cards and stickers.
• Developed verbal autopsy guidelines and forms for stillbirths, neonatal deaths and maternal deaths.
• Established and equipped 10 polindes (birthing huts).
• Organized a communication and transport system with 11 radios and one ambulance.
• Established linkage between the district hospital and health center staff.
• Attended scientific seminars and published articles in scientific journals.

Products

• Papers:
  * Feasibility and Sustainability of Village Based Maternity Services
  * Does the Provision of Maternity Services Closer to the People Improve Use of Those Services?
  * An Integrated Village Maternity Service to Improve Referral Patterns and Perinatal Mortality in a Rural Area in West Java
  * The Impact of Improved Maternity Services on Cost and Utilization of Services
• Final Report

Lessons Learned

The objective of this study is to increase awareness of the importance of care and the recognition of complications among the provider and the community; to provide appropriate maternal care services at the community and district levels; to strengthen the communications and information networks for the formal and informal sectors of the health delivery system and over the long term to develop a replicable model for appropriate maternal care. The lessons learned from this study include:

Affecting Behavior

* Since the establishment of birthing huts is a new concept, the community needs to be involved in their establishment. In this manner the community will not only feel a sense of responsibility toward the birthing hut, but the community will understand the purpose behind them.

* The cost of delivering at the birthing hut must be considered.

* Birthing huts are viewed as valuable because they provide prenatal services, but few use them for delivery as the home is still the priority site. Percentage of pregnant women receiving PNC increased from 9.1% during March 1 - May 31, 1992, to 12.6% during December 1, 1992 - February 28, 1993. Only 5% of births in villages with birthing houses (BHs) occurred at the Bhhs, while for villages with no Bhhs very few delivered at neighboring Bhhs.
A discrepancy exists between the knowledge of danger signs and the action or behavior of women - improved knowledge does not always result in appropriate action.

Knowledge of the community on the type of services the BH could provide increased from 8-23% for prenatal care and from 23% to 44% for delivery. Knowledge of danger signs improved on the part of TBAs as well as the population. The populations knowledge on danger signs improved from 12.0 to 13.36% during pregnancy, 65.2 to 80% during delivery, and from 69.36 to 82.16% postpartum.

TBAs consider referring patients to another facility as a discredit to their standing in the community. However, referrals from TBAs to polindes increased from 19% to 53% for prenatal women and from 17% to 33% during labor/delivery, from Jan. 1992 to May 1993. Compliance with TBA referrals was 100% prenatally, during labor, and the postpartum period. Referrals from Bhs: 80% of women complied (60% for PNC, 86.5% during labor and 100% postpartum).

Improving Services

A case can be made for improved prenatal care for identification of risk factors such as age, parity, malpresentation. However, for those unpredictable problems which occur during labor, delivery, postpartum, a rapid and available transportation system is needed and appropriate care must be available at the health centers and district hospitals.

Although statistically impossible to prove due to the small numbers, the number of maternal deaths declined from the previous (RAS) study of 20 over 2 years (MM Ratio 508/100,000 live births) to 6 in 1992 - 1993 (15 months) for a MMR of 225/100,000 live births. Perinatal mortality shows a downward trend over 18 months of the project period from 47.7/1000 births (Jan. - June 1992) to 39.6/1000 (July - December 1992) and 35.8/1000 (Jan. - June 1993).

Short training courses for TBAs were not as effective as continuous hands-on learning.

Training of all sectors of health care providers resulted in better care. The impact of training was knowledge of doctors and midwives on Perinatal Care. Obstetrical knowledge improved by 27.9% for doctors and by 55.7% for midwives, but pediatric knowledge did not improve for doctors and only improved by 14.2% for midwives. Even though there was considerable improvement, the final scores for doctors and midwives were similar and the questions were the same.

Monitoring and evaluation had a positive impact on recording + reporting:
- "Sweeping" revealed that only 1.5% of Prenatal cases were missed in Tanjungsari and 4.7% in Cisalak, while 1% of deliveries were missed in Tanjungsari and 5.3% in Cisalak.
- Evaluation of official reporting in the control area revealed that only 40% of births were reported to the local government (kecamatan), while only 75% were reported to the HC. Only births attended by TBAs, midwives and doctors were reported, while births attended by other health providers were not reported.
Enhancing Policy Dialogue

* Involvement of the Government was essential to the success of the project. Government health and other officials were supportive of the project and were willing to try innovative ideas, listen to suggestions and participate in seminars. The Governor of West Java decided to lower infant mortality on a crash program basis which motivated officials to learn of the project’s results.

* The Department of Health and UNICEF have started a meeting on SMI. The PI and CoPI will continue participate in this meetings that is planned for each month. The meeting is organized by UNICEF (Dr. Samhari and Dr. Nardho, Department of Health).
Country: Guatemala

Project: Quetzaltenango Maternal & Neonatal Health Project

Collaborating Center: Instituto de Nutrición de Centro America y Panama (INCAP)

Principal Investigator: Dr. Barbara Schieber

Project Dates: July 1, 1990 - August 30, 1993

Population: 150,000

Description and Objectives

The MotherCare/INCAP Quetzaltenango Maternal and Neonatal Health Project aims to reduce maternal and neonatal mortality, using a case management approach which relies on early identification and referral by TBAs and through improved institutional management.

TBAs are the major maternal care providers, attending 60% - 70% of the births (there are no certified nurse-midwives practicing in Guatemala). Training courses for TBAs have been a tradition since 1950 but in spite of these efforts, little impact has been apparent in the recorded maternal and perinatal mortality rates.

The particular focus of the Quetzaltenango Project is to enhance TBAs’ skills in recognition of danger signs and appropriate referral, to strengthen TBAs’ support of pregnant women who are at risk during pregnancy and to upgrade the knowledge and skills of health providers at all levels of the system to respond to complications of pregnancy, delivery and the puerperium.

The project undertook diagnostic hospital and community studies which contributed to the formulation of guidelines and norms for management of normal and abnormal obstetrical and neonatal conditions. Training of neonatal district health teams to use these norms took place in March, 1992. A TBA Trainers’ Workshop (TOT) was held in February, 1992 for 11 participants (6 professional nurses and 5 auxiliary nurses) who are designated as TBA trainers. During this TOT, the trainers reviewed the TBA training materials and the training aids developed under this project and prepared lesson plans and visuals for the TBA training course. The training materials were finalized and formatted into five separate but complementary modules: non-formal education, clinical skills training for TBAs, technical training for nurses, TOT for nurses, and pictorial practice guide for TBAs. Four hundred TBAs were trained by the end of April, 1992, allowing adequate time to collect data of this implementation phase over the last 12 project months.

The Vital Events Reporting System (VERS) is a longitudinal surveillance system for collecting information directly from women. A cluster sampling methodology was used. The VERS covered four periods of data collection (July ’90 - June ’91; January ’92 - June ’92; July ’92 - December ’92; January ’93 - April ’93). Field work of Round I began in July ’91 and ended in
May ’92 due to the interruption in data collection between October ’91 and April ’92 during the cholera epidemic. Since then, fieldwork has been continuous through July ’93 covering all periods of data collection. Since the data collection was based on a retrospective design (women were asked about events in the previous 6 months), data for the last four months of project implementation (a 12 month period) were collected from June through July, 1993. Analysis and write-up will need to continue through the second phase of MotherCare.

**Evaluation Design**

Treatment-control, longitudinal surveillance.

The evaluation of the project is designed to answer the following questions:

- Does training of TBAs in the recognition of complications improve the timeliness and appropriateness of referral during pregnancy, labor and the postpartum period (VERS, R3)?

- Does the continuing education of health personnel and the establishment of protocols improve the management of women and their newborns at health center and health post level (D1-D7)?

- Does the continuing education of physicians and nurses in the hospital and the implementation of protocols improve management of perinatal complications (R2, R3)?

**Project Outputs/Outcomes**

- 80 health workers from health posts/centers trained in detection and management of obstetric and neonatal emergencies at community level.
- 30 Residents in Ob/Gyn and Pediatric Department trained in management of principal obstetric and neonatal emergencies at hospital level.
- 20 TBA trainers trained in detection and management of the principal obstetric and neonatal emergencies, participatory adult education and elaboration of innovative visual materials for TBA training.
- 400 TBAs trained in detection and management of the principal obstetric and neonatal emergencies

**Products**

- Methodological Manual for Assessing Obstetric and Neonatal Management at Hospital, Health Post/Centers and Community Level
- Protocols for the Management of Principal Neonatal Complications for Regional Hospitals
- Protocols for the Management of Obstetric Cases for Regional Departmental Hospitals
- Protocols for the Management of Principal Obstetric and Neonatal Emergencies for Community Health Centers
- TBA Training Manual: 6 Modules:
  I. Outline of the training manual
  II. Adult education and techniques for group education
III. Technical information on complications of pregnancy, labor/delivery, postpartum period, and the newborn for TBA and trainers

IV. How to create audiovisual materials for TBA training

V. TOT guide for training of TBAs on complications of pregnancy, labor/delivery, postpartum period, and the newborn

VI. Planning and follow-up for TBA training courses

- Pictorial Guide for TBAs representing principal obstetric and neonatal emergencies
- Educational visual materials for TBA training
- IEC posters
- Articles:
  - The Timeliness and Appropriateness of TBA Referral of Obstetrical Cases to Hospital
  - Risk Factor Analysis of Peri-Neonatal Mortality in Rural Guatemala
- Papers:
  - Medical Audit of First Week Neonatal Death in a Guatemala Hospital
- Project Abstract: An Intervention to Reduce Maternal and Neonatal Mortality
- Final Report

Lessons Learned

The Quetzaltenango Maternal and Neonatal Health project aims to reduce the maternal and neonatal mortality, using a case management approach based on early identification of problems with appropriate referrals by the TBA and through improved institutional capability to handle these referrals.

Affecting Behavior

1. Health personnel attitudes toward TBAs and patients have been improved through information sessions and motivational-awareness activities.

2. The positive attitude change in health personnel at the hospital level has contributed to the increase of referrals (167%) by TBAs to the hospital.

3. The intervention at the hospital level to improve the attitudes of health personnel toward the TBAs and their patients and the TBA training have a combined effect, and increase the potential for referrals more than each intervention by itself.

Improving Services

1. The training of TBA trainers in the detection and management of the principal obstetric and neonatal complications and in participatory adult education has improved their ability to convey information to the TBAs and to produce changes in practices in the TBAs. The use of innovative visual teaching materials has also contributed to the improved teaching methods.

2. The training of health personnel at health center and health post level to improve their skills and technical knowledge about pre-natal, post-natal and neonatal care, and the elaboration of protocols and subsequent reinforcement supervisory visits have had a positive effect. The
attitude of the health personnel is now more positive toward the patients. Skills in providing prenatal care have been improved. The information registered in the pre-natal, post-natal and neonatal visits is more complete and more accurate than before the training.

3. The establishment of norms at hospital level to improve the management of the principal neonatal complications and the presence of a neonatologist to reinforce the use of these norms have reduced the neonatal mortality rate at the hospital, from 38/1000 live births (1989) to 32/1000 live births (1992) without further equipment or introduction of expensive technologies into the hospital.

4. The involvement of all levels of care in improving the management of obstetric and neonatal cases has shown to be necessary, as referrals at all levels are necessary for the provision of appropriate care in obstetrical and neonatal complications.

Isolated interventions only at the TBA level cannot have the desired impact on maternal and neonatal health if the referral levels (hospitals, health centers/posts) are not prepared and do not participate actively. The clearest example is postpartum hemorrhage, where 52% of cases die in the community within the first six hours postpartum because they are not referred in time due to lack of trust and inadequate referral mechanisms.

5. The number of TBA hospital referrals per month were examined for intervention, control communities and the overall non-intervention group (control communities plus other comparison communities). Clearly there is a statistically significant increase in the overall referrals over time, with a similar pattern for all three communities. Since the pattern of increase is equal in all three groups, it does not appear that these changes are due to the TBA training program, but these changes may be the result of the hospital intervention program. It can be argued that improvement in attitudes of health personnel and patient management may have been the predominant factors in the synergism of improvement in influencing an increase in referrals.

6. Studies of the project show that 92% of the mortality directly attributable to obstetric causes is due to hemorrhage, sepsis and eclampsia. Of peri-neonatal mortality, 96% is caused by asphyxia secondary to malpresentation and prolonged labor, neonatal sepsis, and complications associated with prematurity and low birth weight.

To maximize the impact on the maternal and neonatal mortality in such a short-term intervention with few resources available, these are the complications that should be addressed first. Then, other interventions such as food supplementation, iron distribution, family planning, etc. can be implemented.

7. The supervisory methodology applied by the project seems to have had a positive effect in improving the quality of care provided by the health personnel at the health post/center level. It is not possible to identify specific causal factors, but it appears that the repeated visits, the reinforcement given, and the hands on teaching during the visits after the evaluation were likely explanations.
Health personnel did not like written tests, check lists, and observations. The project team has some preliminary idea about the effect of supervision and this issue needs to be studied in greater detail.

8. Writing norms or protocols and implementing them in institutions is not necessarily effective, even when these institutions participate in their preparation. To ensure the use of the norms/protocols, an extensive follow-up, reinforcement and supervision is needed. To institutionalize norms, a period of at least five years or more is needed, unless a permanent supervisor ensures the utilization of the norms. The example to support this statement is from the implementation of protocols in the General Hospital in Guatemala City.

9. A period of two years to implement the intervention of this project does not ensure the institutionalization of this model. Other experiences have shown that time periods from 5 to 15 years are necessary to guarantee institutionalization of new interventions. This should be considered when long-term goals are defined. The TBA project in Fortaleza, Brazil, supports this statement.

10. Besides one week of theoretical training, TBA trainers need to be supported in the actual training with the TBAs in order to assist them in coping with both the new training methodologies and new teaching materials. Active support during the first two training sessions with TBAs is important. If the necessary support is not provided, effectiveness of the new training methodology would likely be reduced.

Enhancing Policy

1. The TBAs heightened awareness through the training sessions of the need to have access to emergency transportation resulted in the collaboration between TBAs and municipal authorities in some communities. This collaboration was necessary to obtain ambulances and other vehicles for emergency transportation at all times, which were financed by the community.

2. The coordination of NGOs and agencies is very important when several projects are being carried out in adjacent geographical areas. This coordination can avoid interference of one project with another. This is especially important in long-term projects, as other projects from other institutions might be funded in the same geographical area one or two years later when the initial project is still running.

3. To be able to convince MOH officials to participate in a project and to assign their time or time from their staff to the project activities, three aspects have been crucial:

   a. Data of good quality that describe the health problem very specifically have to be presented in a very comprehensive and practical way. If the data are originated from the area where the MOH officials work, the interest increases.

   b. The project director, staff and institution that promote the project must have high credibility and if a relationship of trust exists, based on previous working contacts, the negotiation is more successful.
c. The permanence of the principal staff of the project in a geographical area also promotes a relationship of trust, and it is very important because the project staff will be familiar with the situation of the working area.

**Carry-over Activities to Phase II Project**

Data collection of the surveillance system was completed in the beginning of August 1993. Data entry and cleaning was completed mid-August 1993. Detailed analysis and write-up of findings, which will cover the first question the project aims to answer, needs to be undertaken during the next phase of the project.
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<tr>
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<tr>
<td>Project:</td>
<td>Maternal Health</td>
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<td>Collaborating Center:</td>
<td>Department of Health, Office of Public Health (DOH)</td>
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<tr>
<td>Principal Contact:</td>
<td>Dr. Camilla Habacon, Chief, Maternal and Under Fives Care Division</td>
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<td>September, 1992 - August, 1993</td>
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<td>Population Base:</td>
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<td>Evaluation Design:</td>
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**Description and Objectives**

Through USAID/Manila PIO/T, MotherCare has provided a package of short-term technical assistance to the Maternal and Under Five Care Division of the DOH. All of the MotherCare technical input has been extended in collaboration with the DOH staff and involves four major areas - systems development and long-term directional planning at the DOH level; standards of midwifery practice; IEC component, as part of an overall integrated maternal health strategy; and a validation study to quantify the sensitivity of specific questions for morbidity associated with the main causes of maternal mortality through a MotherCare/JSI subcontract with Macro, Inc.

As of September, 1992, the groundwork was initiated for development of the Directional Plan (1993-1997) with the identification of output objectives, including such targets as: training all rural health midwives in Home-Based Mothers’ Records; training midwives in remote areas to handle obstetrical emergencies; distribution of iron and folate supplementation, etc. The work on this Plan has continued without further assistance from MotherCare.

In March, 1993, a MotherCare/ACNM consultant joined a DOH/MCH Working Committee to update The Manual of Operations to Guide Midwifery Practice, including the development of flow charts for obstetrical emergencies. The manual was reviewed by a team of experts, including individuals outside of the DOH. The manual content provided the basis for the Design/Write Workshop for Trainers which was held in July, 1993. The Manual of Operations to Guide Midwifery Practice will be pretested in late August - early September, 1993.

The DOH has scheduled eight Regional TOTs but due to the termination of MotherCare Contract in September, 1993, MotherCare will only be able to provide technical assistance and funding for the Design/Write Workshop and the pretest of the manual.

Within the IEC component, MotherCare assisted the DOH in its efforts to strengthen their IEC capability by funding two DOH staff members to attend an intensive Family Communications
course at The Johns Hopkins, PCS, June 7 - July 2, 1993. In addition, MotherCare provided short-term technical assistance through a local consultant during April - August, 1993 who is assisting the DOH to: develop sets of IEC materials including flipcharts, comic books, and an informational folder for use by midwives, TBAs and women; conduct a training session on the use of the materials, as part of the Midwifery TOT and provide additional assistance as needed, such as, the review and adaptation of the interpersonal communication skills training module for MCH.

The validation study was initiated in Manila in March, 1993 in collaboration with Dr. M. Festin of the Clinical Epidemiology Unit, Philippines General Hospital. As stated above, the main objective of the study is to quantify the sensitivity and specificity of specific questions for morbidities (hemorrhage, dystocia, eclampsia, puerperal infection) associated with the main causes of maternal mortality and compared to the diagnoses abstracted from the hospital records of admissions within the past four years. This focus was chosen because of: constraints of time and money thus mandating concentration on a few specific outcomes; the importance of these problems as causes of maternal mortality; the lack of data on the accurate reporting of such complications and the availability of existing data on the accuracy of reporting other reproductive morbidities. Of the 632 hospital records abstracted, only 230 women were located to interview. Those interviewed had the following distribution of complications: dystocia (48), hemorrhage (53), sepsis (9), eclampsia (16) and non-cases (114). Women with eclampsia were particularly difficult to find due to lack of detailed addresses on the chart. The low number of women with sepsis was primarily a function of the low number of records available for abstraction since many of these cases occurred in the postpartum period and their records had not been assembled in one chart.

A complementary ethnographic study was carried out under Macro through a subcontract with the Research Institute for Mindanao Culture at Xavier University, Cagayan de Oro City. The objective of this study was to use ethnographic methods to explore women’s perceptions and experiences of the morbidities covered in the Safe Motherhood Survey. They conducted a total of 62 interviews with women in the urban and periurban areas of Cagayan de Oro. These interviews revealed many of the experiential and cultural perceptions of pregnancy and obstetric morbidity, including local folk beliefs surrounding pregnancy and childbirth. These interviews revealed the most salient morbidities and how people recognize and describe them. The preliminary findings from the qualitative study will be used in the revision of the Safe Motherhood questionnaire. The qualitative component also clarified some puzzling findings from the validation study.

**Evaluation**

Since the IEC materials will just be produced in September at the end of MotherCare, the use and impact of these materials will not be assessed under MotherCare. The same is true of the midwife training component.
Products

- Operations Manual for Midwifery Practice
- Training of Trainers Curriculum for Midwives in the use of the Manual
- IEC Materials:
  - Flipcharts to be used by midwives
  - TBA folders
  - Comic books and informational fan for clients to take home
- Results of the Validation Study and Ethnographic Study
- A Philippines specific Safe Motherhood Survey questionnaire for maternal morbidity
- Final Report
SETTING C
Setting C takes a quantum leap: it typifies urban and periurban sites with a fairly well-developed public and private health infrastructure that is heavily in demand. The referral site is typically overwhelmed with normal deliveries as well as emergency cases, but quality of care remains an issue. Contraceptive prevalence is about 40 percent but maternal mortality may still be between 100 to 300.

These environments are typically receptive to policy reform, particularly through cost-saving measures.

**Priority Interventions:** Broaden the focus beyond family planning and basic maternity care; decentralize services and redirect women to the appropriate level of care; enhance demand for quality services by providing women and their families with messages about the appropriate services to meet their needs.

**Policy Reform:**
- Decentralize services and redirect women for primary health care, family planning and normal deliveries to MCH clinics, health centers, or birthing centers (i.e., centers where normal deliveries can be managed).
- Delegate medical responsibility (e.g., IUD insertion, manual removal of placenta), and train and license more accessible staff, such as midwives.
- Coordinate services to ensure appropriate referral to referral sites or to more peripheral units for both family planning and maternity care (including public/private and formal/informal sectors) through protocols and other means.
- Reach consensus on the provision of services for managing unwanted pregnancies.
- Institute provider accountability (through audits) for maternity outcomes.
- Develop a more comprehensive strategy for women's health, including integrating primary health care and prenatal and postpartum care with infection services, especially those for syphilis and/or malaria depending on need, and with nutritional screening and treatment.
- Determine how to ensure cost-efficiency of programs, e.g., establish cost recovery schemes, cross-subsidization programs for public sector services, or subsidize private routine services.
- Prepare for policy dialogue in a systematic way, particularly in a decentralized system.

**Improved Services:**
- Upgrade providers’ skills in provision of the full range of family planning, management of unwanted pregnancies, early obstetrical and neonatal case detection, prenatal screening, treatment, appropriate referral and counseling at all levels through refresher training and modifications in the basic training curriculum of health professionals.
- Improve efficiency of management of services, institute maternal and perinatal death audits, and coordinate supervision from hospital level to community level to ensure quality of all available maternal services.
- Shift provider focus toward enhanced quality of care (e.g., case management, counseling) for family planning and maternal and neonatal care, with special attention to marginalized groups, and integrate primary health care with nutrition and infection screening and treatment.
- Reduce excessive medical intervention (e.g., cesarian section).

**Behavior Change:**
- Strengthen the quality of interaction between client and provider by improving the interpersonal communication and counseling skills of clinic-based and outreach health care workers.
- Promote awareness and use of alternative prenatal care and birthing facilities to deliver women in need of routine care away from hospitals.
- Influence providers towards the preventive and promotive perspective of safe motherhood, and away from more advanced technologies for treatment.
- Aim community-oriented messages at redirecting use of services, and enhanced understanding of the benefits of family planning, signs of obstetrical and neonatal complications and appropriate facilities to use, and the dangers of women's poor nutritional status, plus AIDS and other STDs.
Country: Bolivia

Project: Cochabamba Reproductive Health Project

Collaborating Centers: Cochabamba Unidad Sanitaria, Maternidad German Urquidi, PROMEFA, COMBASE, ME.DI.CO, CPCCM, CIAES

Principal Investigator: Bill Bower

Project Dates: December 1, 1990 - July 31, 1993

Population Size: 120,650 women of reproductive age

Description and Objectives

The Cochabamba Project aims to reduce maternal and neonatal morbidity and mortality in the urban and peri-urban areas of Cochabamba by:

- increasing the recognition of problems during pregnancy, delivery and the neonatal period by women and their families, as well as improving their response to such problems, i.e. seeking medical attention;

- increasing the utilization of prenatal, delivery and postnatal care;

- increasing the availability of contraceptive services and information to couples who wish to postpone or limit child-bearing, and increasing the use of the same;

- improving the quality of prenatal, delivery and postnatal services offered by the public and private sector, through a more systematic assessment of pregnant women and neonates and the creation of a functioning referral system for those experiencing problems.

The MotherCare Project in Cochabamba officially started December 1, 1990, after approximately nine months of project development activity. The project has four principal components: research, information/education/communications (IEC), training, and service enhancement. Together, the activities under these four components are intended to increase the public’s demand for reproductive health services, improve the quality of those services and, in this way, contribute to an eventual decline in maternal and neonatal mortality.

A qualitative study of women’s reproductive health knowledge, attitudes and practices, conducted during the first half of 1991, has been well-received in Cochabamba and elsewhere (Working Paper #9: Qualitative Research on Knowledge, Attitudes, and Practices Related to Women’s Reproductive Health: Cochabamba, Bolivia. July, 1991). The results of the study were analyzed during a project development workshop in Cochabamba from August 29-September 1,
On the basis of the study’s findings and the workshop’s recommendations, a comprehensive IEC strategy was developed.

The implementation of the IEC plan began in March 1992, and will continue until the end of the MotherCare Project in July 1993. The first component, "sensitization," is aimed at stimulating awareness of the policy makers, health providers and others to the problems of maternal and neonatal health. The dissemination of materials began in August 1992. The other components include: prenatal care; safe, clean birth; postpartum and neonatal care; and family planning; and target women of reproductive age, family members, especially husbands and other leaders in the peri-urban and urban communities of Cochabamba, with approximately six months between the launch dates for each. Revisions and changes in format are made as lessons are learned from the previous campaigns. The first mini-campaign on prenatal care was launched in December 1992, following the sensitization component. The materials produced in each mini-campaign are similar - a video per component, and a television spot per subtopic; a radio spot per subtopic; a flipchart per theme, and educational pamphlets and audio cassettes per subtopic, for use by health workers and women.

The training plan was implemented beginning in November 1992. The two areas of emphasis are clinical training in management of high risk women and perinatal care as per the women’s input from the qualitative assessment, and training in skills for interpersonal communications and the use of the IEC materials developed by the project. These components are developed and implemented through a Regional Training Committee, made up of staff from the MOH and 4 local NGOs. The priority audience for training courses are staff of the NGOs with whom MotherCare is working to expand comprehensive maternal and neonatal services, and local MOH staff from 18 facilities throughout Cochabamba.

To improve availability and quality of reproductive health services, MotherCare has worked closely with four local NGOs working in the poor sections of town. In addition to providing funds for upgrading their clinics and community services and providing equipment and supplies, MotherCare has worked with the NGOs and USAID to develop standardized service statistics and a logistics reporting system.

**Evaluation Design**

Pre-, Post- Quantitative Survey  
Facility Reporting System (MOH -- 18 facilities; 4 NGOs)

**Project Outputs/Outcomes**

**PRENATAL CARE**

No significant changes in utilization of prenatal care services at the population level through the quantitative survey; however, service statistics show that among the NGOs, prenatal care services increased 17% at COMBASE, 29% at CPCCM, 79% at PROMEFA, and 102% at MEDICO; and in the MOH Northern District 50%, comparing the six-month periods JAN - JUN 1992 and JAN - JUN 1993 (pre- and post-training).
Detection of high risk pregnancies by health workers increased over 250% among the NGOs and 116% in the MOH Northern District after refresher training in prenatal care.

The percent of women who saw or heard a message about prenatal care rose from 42% to 71%; those who saw or heard a message about danger signs during pregnancy rose from 24% to 57%; and those who remembered EDEMA as a risk factor rose from 2% to 64%. Traditionally edema was thought to be a positive sign indicating an easy birth, thus it was targeted for change.

The percent of women who know any danger sign during pregnancy increased from 26% to 43%; those who know EDEMA is a danger sign increased from 4% to 24%. No change was seen in knowledge about hemorrhage or malposition as danger signs, but these were not specifically targeted for change due to a large number of women already knew of their seriousness.

FAMILY PLANNING

The percent of women who saw or heard a message about family planning or reproductive health rose from 35% to 45%.

The percent of women knowing any modern method of contraception increased from an average of 22% to an average of 40%.

Contraceptive prevalence did not change, remaining at 13.7%. However, among the NGOs, new IUD users increased 59%, new pill users 88%, new condom users 58-9% and new vaginal tablet users 24%, comparing the six-month periods JAN-JUN 1992 and JAN-JUN 1993. Those getting contraceptives from the public sector increased from 49% to 63%. Health personnel advising use of contraceptives rose from 68% to 77%; father of the child advising use of contraceptives rose from 3% to 7%.

NGO SERVICE DELIVERY

Comparing the six-month periods JAN-JUN 1992 and JAN-JUN 1993

<table>
<thead>
<tr>
<th>Service</th>
<th>Increase</th>
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<tbody>
<tr>
<td>Home visits</td>
<td>56%</td>
</tr>
<tr>
<td>Health talks</td>
<td>82%</td>
</tr>
<tr>
<td>OB/GYN consultations</td>
<td>81%</td>
</tr>
<tr>
<td>Total consultations</td>
<td>69%</td>
</tr>
<tr>
<td>Home births attended by trained staff</td>
<td>tripled</td>
</tr>
<tr>
<td>Institutional births</td>
<td>38%</td>
</tr>
<tr>
<td>Total births attended</td>
<td>48%</td>
</tr>
<tr>
<td>New PAP smears taken</td>
<td>65%</td>
</tr>
</tbody>
</table>
Prenatal care consultations  26% increase  
COMBASE  17% increase  
CPCCM  29% increase  
PROMEFA  79% increase  
MEDICO  102% increase  

New IUD consultations  59% increase  
New pill consultations  88% increase  
New condom consultations  59% increase  
New vaginal tab consults  24% increase  

Products

- IEC Multi-Media Materials: Maternal and Neonatal Services (Sensitization, Prenatal Care Safe Birth; Due to project timing Postpartum and Newborn Care, could not be done.)
- Surveillance Instrument: Cochabamba Health Clinic Information System, Quantitative Survey
- IEC Monitoring Instruments
- Final Report: CIAES Pre- and Post-Intervention
- Papers:
  - The Influence of Improved Quality of Reproductive Health Care on Use of Services
  - Final Report

Lessons Learned

This project interdigitates on three different levels: at the level of the woman and her family - to stimulate awareness and utilization of reproductive health services and increase practice of other positive related behaviors; at the level of health services - to increase availability, coverage and quality of maternal and family planning services; at the policy and planning levels - to improve access of local and national donor agencies to maternal and neonatal health and nutrition information for use in program planning and implementation.

Affecting Behavior

* The involvement of health workers in developing the philosophy and objectives of the project is essential. However the challenge is to promote commitment on behalf of the health workers to change their attitudes and behavior towards the clients.
* Health messages delivered by a health worker trained in using appropriate IEC materials are better remembered even though mass media messages are more frequently repeated.

Improving Services

* Health workers need correct knowledge and skills, appropriate attitudes, adequate equipment and materials and good management to be able to provide quality services.
* NGOs estimate that 90% of their clients choose their service because of a satisfied client’ recommendation.
* Service coverage was increased through "Associates" who voluntarily joined the project.
(receiving only contraceptives, IEC materials, and training). This may be a more cost-effective arrangement than using the Subcontractual mechanism. However, the trade-off with the former is that the project has less control over quality of services.

* Regular availability of contraceptives makes an enormous difference in clients' confidence and use of family planning services.

**Enhancing Policy Dialogue**

* Basing project interventions on the results of the qualitative research has been very convincing. These methodologies and findings should be disseminated widely.

* NGOs were convinced to join the project because of the strategies that involved the utilization of formative research in the design of materials, the involvement of the community in the development of the materials, a broader definition of reproductive health (prenatal, birthing and postpartum care including the care of the neonate, family planning).
**Country:** Kenya  
**Project:** Congenital Syphilis Prevention in Nairobi City Commission Public Health Clinics  
**Collaborating Institution:** University of Nairobi/University of Manitoba  
**Principal Investigator:** Dr. Francoise Jeanniskens  
**Project Dates:** June, 1992 - August, 1993  
**Population Size:** 12,500 pregnant women/year

**Description and Objectives**

The University of Nairobi/University of Manitoba submitted a proposal to MotherCare in late, 1991 aimed at strengthening preventive activities related to the prevention of congenital syphilis in three Nairobi City Commission (NCC) public health clinics. Between 7 and 10 percent of pregnant women are seropositive; untreated, one-fourth of their pregnancies would end in miscarriages or stillbirths while another one-third would lead to congenital infection. At the clinic level, the process of screening and of follow-up treatment for pregnant women attending prenatal care clinics (PNC) are separated by time and location. Pregnant women had to wait up to two weeks for test results (if tested), and were usually asked to go (if they came back for test results) to a central location for treatment. Results were predictable (University of Nairobi, 1989):

- 60 percent of prenatal care attenders were actually screened for syphilis;
- 9.1 percent of those who tested seropositive were treated for syphilis;
- although unmeasured, partner treatment could be assumed to be equally very low.

The proposal submitted by the University of Nairobi/University of Manitoba was designed by Dr. Marleen Temmerman from the Institute of Tropical Medicine in Antwerp.

Initial project interventions designed to improve this situation in three Nairobi City Commission clinics were straightforward. Training, drug supplies and supervision were given to participating PNC staff in order for them to provide all attending pregnant women on-the-spot screening using the Rapid Plasma Reagin (RPR) test and immediate (within two hours) treatment. Partners would be contacted through the women with a slip of paper notifying them to come to the clinic to ensure the health of the unborn baby. Also, intensive qualitative research was conducted with pregnant women (those infected and uninfected), their partners and their service providers to determine the factors that motivated, inhibited and enabled health care-seeking and providing behavior and compliance with treatment and prevention of re-infection of syphilis.

While the major proposal focus was on the screening, diagnosis and treatment of syphilis, MotherCare recommended expanding the number of NCC clinics to 10 and placing more
emphasis on the IEC component. A Subcontract between MotherCare/JSI and the University of Nairobi/University of Manitoba for project implementation extends between June, 1992 and August, 1993. The initial intervention objectives are as follows:

- increase the proportion of pregnant women who seek prenatal care before 20 weeks of gestation;
- increase the proportion of pregnant women screened for syphilis at the prenatal clinics;
- raise the percentage of pregnant women receiving treatment when found to be seropositive;
- increase the numbers of partners notified and treated;
- study the health-seeking and health-providing behavior during pregnancy and factors that influence these behaviors;
- study effectiveness and cost-effectiveness of the interventions.  

The project is now finalizing screening, treatment and counseling training modules for PNC providers of NCC clinics. Accompanying counseling cards for use with clients and their partners to promote an understanding of preventing re-infection were developed (based on the formative research), pre-tested and produced with the intended audience. In order to prevent re-infection and to better enable pregnant women to notify and encourage their partners to get treatment, take-home leaflets have also been developed and produced.

Primary messages for seropositive clients and their partners emphasize compliance with treatment (i.e. abstaining from sex or using a condom; notifying all partners) and improved negotiation skills for pregnant women in convincing their partners to seek treatment.

These materials had been introduced during a series of clinical/counseling workshops for service providers starting in mid 1993 and will be further disseminated in September.

A larger community-based information, education and communication campaign will be developed to increase early (before 20 weeks) PNC attendance by pregnant women as well as promote a better understanding of preventing STDS among the community once services are in place. However, formative research with focus group discussions and in-depth interviews was conducted in May 1993 with pregnant women, their partners and other influentials, including prenatal care providers, to better define motivating, enabling and inhibiting factors of early PNC attendance.

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1Due to time constraints in implementing the project, these objectives were dropped.
**Evaluation Design and Results**

Intensive clinic data collection compiled through qualitative interviews of clients and partners was utilized to identify trends of behavioral change among (1) pregnant women in seeking early prenatal care and, (2) partners of seropositive pregnant women coming in for treatment.

Over a five month implementation period, results have been dramatic:

- 100 percent of prenatal care attenders were actually screened for syphilis;
- 86 percent of those who tested seropositive were adequately treated;
- 52 percent of their partners (assuming one partner per seropositive pregnant woman) were treated.

Thanks to continued discussions and involvement with the Nairobi City Clinic and the Kenya Ministry of Health, they are now interested in replicating the service intervention as well as counseling activities in other NCC clinics throughout Nairobi and other urban areas in Kenya.

**Products**

- Two qualitative research reports on factors that motivate, enable and inhibit pregnant women, their partners and PNC staff in (1) receiving adequate screening, treatment and counseling for syphilis infection (clinic-based); and (2) seeking early prenatal care (community-based).
- Training module on screening, treatment and counseling for service providers (in process of refinement and pretesting);
- Clinic-level counseling cards for infected pregnant women, and for their partners;
- Clinic-distributed take-home cards for infected pregnant women and for their partners on treatment and prevention of re-infection.

**Lessons Learned**

- Involvement by clinic staff at the onset of project design encourages improved involvement in all aspects of its implementation.
- Realistic time and resource allocations are needed to initiate as well as to measure the impact of any interventions designed to change behavior.
- Interventions need to address management and supervision activities as well as improved logistics, equipment and supplies in order to sustain improved services.
- Formative qualitative research combined with quantitative clinic data is a strong foundation to build any service improvements, training programs and IEC activities designed to affect behavior.
Country: Ecuador

Project: Kangaroo Mother Method

Collaborating Institution: Isidro Ayora Maternity

Principal Investigator: Dr. Lenin Leon


Description and Objectives

In February 1991, a group of physicians from the Maternidad Isidro Ayora in Quito, Ecuador, requested financial and technical assistance from MotherCare to conduct a study of the Kangaroo Mother Method, an ambulatory method for the care of low birth weight infants as designed by Drs. Martinez and Rey, Columbia, 1979.

Through the MotherCare program, The Population Council worked collaboratively with this group to design and conduct a randomized controlled trial of this method which applied identical study eligibility criteria to the Kangaroo and control groups. The objectives of the study were to assess the effects of the method on infant morbidity, growth and cost of care. Study subjects were followed up through 6 months of age.

The characteristics of both groups were fairly similar (gender, birthweight, gestation, Apgar scores, weight at eligibility, most socio-economic and all reproductive health indicators), but some differences, including age at eligibility and incidence of severe morbidity prior to eligibility, were observed (controls were slightly older and had more pre-eligibility severe conditions).

Surprisingly, there has been no difference in the mother’s sense of security in taking care of her child between the two groups. As expected, the Kangaroo mothers expressed more difficulty with the method of care, particularly complaining of backaches. Fathers feelings about their child’s method of care do not vary by group, most expressing themselves as very content with the method. Skin-to-skin contact was only reported to occur in the Kangaroo group, but fewer than 40% of women continued skin-to-skin contact by 42 days of life, and almost no one continued this through 61 days of life.

Although there were no differences in feeding patterns (the Isidro Ayora Maternity is the epitome of a baby friendly hospital), large differences in breast contact have been observed with Kangaroos having much more contact up through 61 days of life. Sleeping contact is also very different, with Kangaroos having more, even after the third month of life.
## CUMULATIVE RATES OF ILLNESS AT FOLLOW-UP

<table>
<thead>
<tr>
<th></th>
<th>Mild Conditions</th>
<th>Severe Conditions</th>
<th>Hospitalized</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>KMM</td>
<td>Control</td>
<td>p</td>
</tr>
<tr>
<td>28 days</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>24.4%</td>
<td>29.0%</td>
<td>.48</td>
</tr>
<tr>
<td></td>
<td>(n=86)</td>
<td>(n=107)</td>
<td></td>
</tr>
<tr>
<td>42 days</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>32.0%</td>
<td>45.1%</td>
<td>.05</td>
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<tr>
<td></td>
<td>(n=103)</td>
<td>(n=122)</td>
<td></td>
</tr>
<tr>
<td>61 days</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>44.6%</td>
<td>54.1%</td>
<td>.14</td>
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<tr>
<td></td>
<td>(n=112)</td>
<td>(n=135)</td>
<td></td>
</tr>
<tr>
<td>92 days</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>51.4%</td>
<td>66.2%</td>
<td>.02</td>
</tr>
<tr>
<td></td>
<td>(n=109)</td>
<td>(n=133)</td>
<td></td>
</tr>
<tr>
<td>121 days</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>76.7%</td>
<td>80.9%</td>
<td>.65</td>
</tr>
<tr>
<td></td>
<td>(n=100)</td>
<td>(n=132)</td>
<td></td>
</tr>
<tr>
<td>152 days</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>83.3%</td>
<td>85.2%</td>
<td>.43</td>
</tr>
<tr>
<td></td>
<td>(n=103)</td>
<td>(n=131)</td>
<td></td>
</tr>
<tr>
<td>183 days</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>86.7%</td>
<td>89.0%</td>
<td>.71</td>
</tr>
<tr>
<td></td>
<td>(n=102)</td>
<td>(n=128)</td>
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</tbody>
</table>

Mild illness: Includes upper respiratory conditions, dermatitis, mycosis, jaundice, and hip displacement.

Severe illness: Includes lower respiratory conditions, apnea, aspiration, pneumonia, septicemia, generalized infections.
<table>
<thead>
<tr>
<th></th>
<th>Weight (g)</th>
<th></th>
<th>Head Circumference (cm)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>KMM</td>
<td>Control</td>
<td>p</td>
<td>KMM</td>
</tr>
<tr>
<td>28 days (n=86;107)</td>
<td>2066±441</td>
<td>1996±412</td>
<td>.26</td>
<td>32.5±1.7</td>
</tr>
<tr>
<td>42 days (n=100;116)</td>
<td>2365±611</td>
<td>2308±581</td>
<td>.48</td>
<td>33.5±1.8</td>
</tr>
<tr>
<td>61 days (n=106;126)</td>
<td>2945±764</td>
<td>2756±759</td>
<td>.06</td>
<td>35.1±2.3</td>
</tr>
<tr>
<td>92 days (n=97;115)</td>
<td>3797±921</td>
<td>3676±861</td>
<td>.33</td>
<td>36.8±1.8</td>
</tr>
<tr>
<td>121 days (n=86;105)</td>
<td>4557±909</td>
<td>4407±914</td>
<td>.26</td>
<td>38.5±1.6</td>
</tr>
<tr>
<td>152 days (n=85;98)</td>
<td>5079±993</td>
<td>4934±994</td>
<td>.32</td>
<td>39.6±1.6</td>
</tr>
<tr>
<td>183 days (n=72;97)</td>
<td>5763±840</td>
<td>5550±969</td>
<td>.14</td>
<td>40.9±1.4</td>
</tr>
</tbody>
</table>
Growth is somewhat better in the Kangaroo group, with about a 150g to 200g increment seen between the third and sixth month of life. No difference in moderate conditions (generally urinary infections) were observed between groups, but the difference in the cumulative incidence of severe illness (mostly lower respiratory conditions, but also including apnea, aspiration, pneumonia, septicemia, generalized infections), was striking (three times less in Kangaroo group by the sixth month of life) and highly significant from the second month of life on. Controlling for pre-eligibility differences in severe morbidity reduced the magnitude and significance of this association very slightly (from \( p < 0.002 \) to \( p < 0.005 \)). Substantial differences were also observed in mild illness (which include upper respiratory conditions, dermatitis, mycosis, jaundice, hip displacement and diarrhea) in the first two months of life (about 35% less in the Kangaroo group). The cumulative incidence of rehospitalization was also over two times greater in control that Kangaroo children at the fifth and sixth month of life.

There was no difference in the cumulative incidence of mortality, with 11 (8.3%) deaths in the Kangaroo group and 14 (9.4%) in the control group. The KMM did not reduce neonatal mortality, because most of this mortality occurred in the early neonatal period. In fact, 85% of neonatal mortality took place before infants were considered eligible for assignment to either study group. It could be argued that the eligibility criteria were too demanding, but on review they are rather conservative. Had they been less conservative and equally applied to both groups, the random allocation of infants to the study groups would most likely have divided the very low birthweight/premature infants proportionately in each group, resulting in the same observation of equal mortality experience in both groups. The Kangaroo mother method should not be considered a method to reduce neonatal mortality for infants born in hospitals.

Costs of neonatal care were also greater in the control than Kangaroo group. Kangaroo infants were, on average (by chance), two days younger at eligibility, and were two days older at discharge than control infants, so their length of hospital stay was actually four days greater (from the point of eligibility) than control infants \( (p < 0.05) \). However, more infants in the control group were in incubators after the day of eligibility than Kangaroo infants and their costs of post-eligibility, pre-discharge hospitalization was 475,000 sucres (about $340 at the median rate of exchange for the study duration) higher than that of Kangaroo infants. Costs of postneonatal care, that is costs of clinic visits, rehospitalization (including use of incubators and heated cribs), medication and transportation post-discharge were also greater for the control than Kangaroo group (ranging from $14 to $401 greater). While the Kangaroo group had higher expenditures for clinic visits, due to greater utilization of what appears to be preventive health care services than the control group, the control group had greater costs of rehospitalization associated with having more mild or serious illness and utilization of costly technology (incubators) than the Kangaroo group. None of the differences in costs were statistically significant, but they are considerable for Ecuadorian families whose income is generally low.

What is striking is that all the differences in "method adherence" (skin-to-skin contact, sleeping with the infant, etc.) are observed in the first few months of life, yet, except for mild illness, the differences in growth and severe morbidity were observed only after 2 months of age. While breastfeeding, contact, and heat in the first few months of life may improve maternal-infant bonding, and longer term attentiveness, it also appears that utilization of preventive health care
services (including longer duration of neonatal hospital stay) had significant impact on reducing serious illness. While these aspects of the Kangaroo method may be "more expensive," mothers of Kangaroo infants tended to bring their children back for well baby visits even though it cost them more money and time than it did for the control mothers. Rather than being an imposition on postpartum women, the transference of some of the responsibility for a neonate in a precarious condition to the mother seems to have resulted in a greater assumption of responsibility, caring, preventive health care utilization and possibly bonding between the mother and child.

Still, given the (minimal) statistical chance that this sample is not representative of the general population of low birthweight infants living in these (high altitude) conditions, the fact that some pre-eligibility differences were found between groups, and that no other study with an adequate comparison group and sample size has been conducted, the study requires replication.