

**THE MOTHERCARE EXPERIENCE IN INDONESIA  
FINAL REPORT**

**JULY 2000**

**Endang Achadi, MotherCare/Indonesia  
Diana Beck, MotherCare/ACNM/Indonesia  
Ali Zazri, MotherCare/Indonesia  
Supratikto Gunawan, MotherCare/Indonesia  
Lara Zizic, MotherCare/Indonesia  
Surekha Cohen, MotherCare/Indonesia  
Idrus Jus'at, MotherCare/Indonesia  
Carine Ronsmans, London School of Tropical Medicine and Hygiene  
Jeanne McDermott, MotherCare/Washington**

This publication was made possible through support provided by JOHN SNOW, INC./MOTHERCARE PROJECT and THE OFFICE OF HEALTH AND NUTRITION, BUREAU FOR GLOBAL PROGRAMS, FIELD SUPPORT AND RESEARCH, U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT, under the terms of Contract No. HRN-C-00-93-00038-00, HRN-C-00-98-00050-00, HRN-Q-00-93-00039-00. 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 or John Snow, Inc.

## TABLE OF CONTENTS

<b>INTRODUCTION</b> .....	3
<b>EVALUATION METHODS</b> .....	5
<b>KEY FINDINGS OF THE EVALUATION</b> .....	6
<b>IMPROVED QUALITY OF SERVICES</b> .....	9
<b>CONCLUSIONS</b> .....	22
<b>APPENDIX</b> .....	24

### TABLES

<b>Table 1:</b> Health care infrastructure in three districts in South Kalimantan (1997).....	6
Improved quality of services.....	7
Improved Life saving skills (LSS) of facility and village based midwives.....	7
<b>Table 2:</b> Content of training programmes for facility and village based midwives.....	8
<b>Table 3:</b> Effect of the training, peer review and continuing education programme on mean skill scores and % ‘competent’ providers for facility and village based midwives, and costs of programme.....	10
<b>Table 4:</b> Interpersonal communication and counselling (IPCC) skills taught during IPCC training, and used to construct score for assessment.....	12
<b>Table 5:</b> Effect of training on interpersonal communication and counselling (IPCC) skills of village midwife.....	13
<b>Table 6:</b> Effect of interpersonal communication and counselling (IPCC) training on the completeness of anaemia counselling among village midwives (percent of village midwives who discussed topic with at least one of their clients, from observation during 4 patient visits).....	14
<b>Table 7:</b> Causes of maternal death reported in health facilities and through MPA programme (reported in percentages).....	15
<b>Table 8:</b> Examples of recommendations emanating from the MPA.....	16
<b>Table 9:</b> Percentages of women naming selected pregnancy danger signs, by year of survey.....	21
<b>Table 10:</b> Percentages of women reporting that they had received information about health and health problems in pregnancy or when having a baby.....	19
<b>Table 11:</b> Trends in proportions of live births in the population admitted to hospital for caesarean sections and life-saving interventions.....	22

### FIGURES:

Figure 1: Map of Indonesia.....	5
Figure 2: Evaluation framework for MotherCare and Ministry of Health activities.....	6
Figure 3: Percent of births with skilled attendant.....	22
Figure 4: Percent of births with postpartum visit.....	23

## INTRODUCTION

The maternal mortality ratio in Indonesia is estimated at 337 per 100,000 live births (1997), one of the highest reported among Asian countries. The Government of Indonesia has committed to reducing the maternal mortality ratio by half by the year 2000, primarily by increasing the number of births attended by clinically skilled health care providers either at a facility or in the home. To implement the strategy, the Ministry of Health began a program in 1993, to post a trained midwife in each village (*Bidan di desa*), especially those villages that are more remote. This program anticipated deployment of 54,000 midwives in about five years.

In 1994, MotherCare began working with the Indonesian Ministry of Health and the national midwife association (Ikatan Bidan Indonesia – IBI) to support and enhance the ongoing Safe Motherhood initiative. Three target districts (Banjar, Barito Kuala and Hulu Sungai Selatan) in the province of South Kalimantan, with a total population of 1 million were selected by the Ministry to develop an innovative and integrated approach to Safe Motherhood (see map). This approach is expected to serve as a model for comparable provinces in Indonesia.

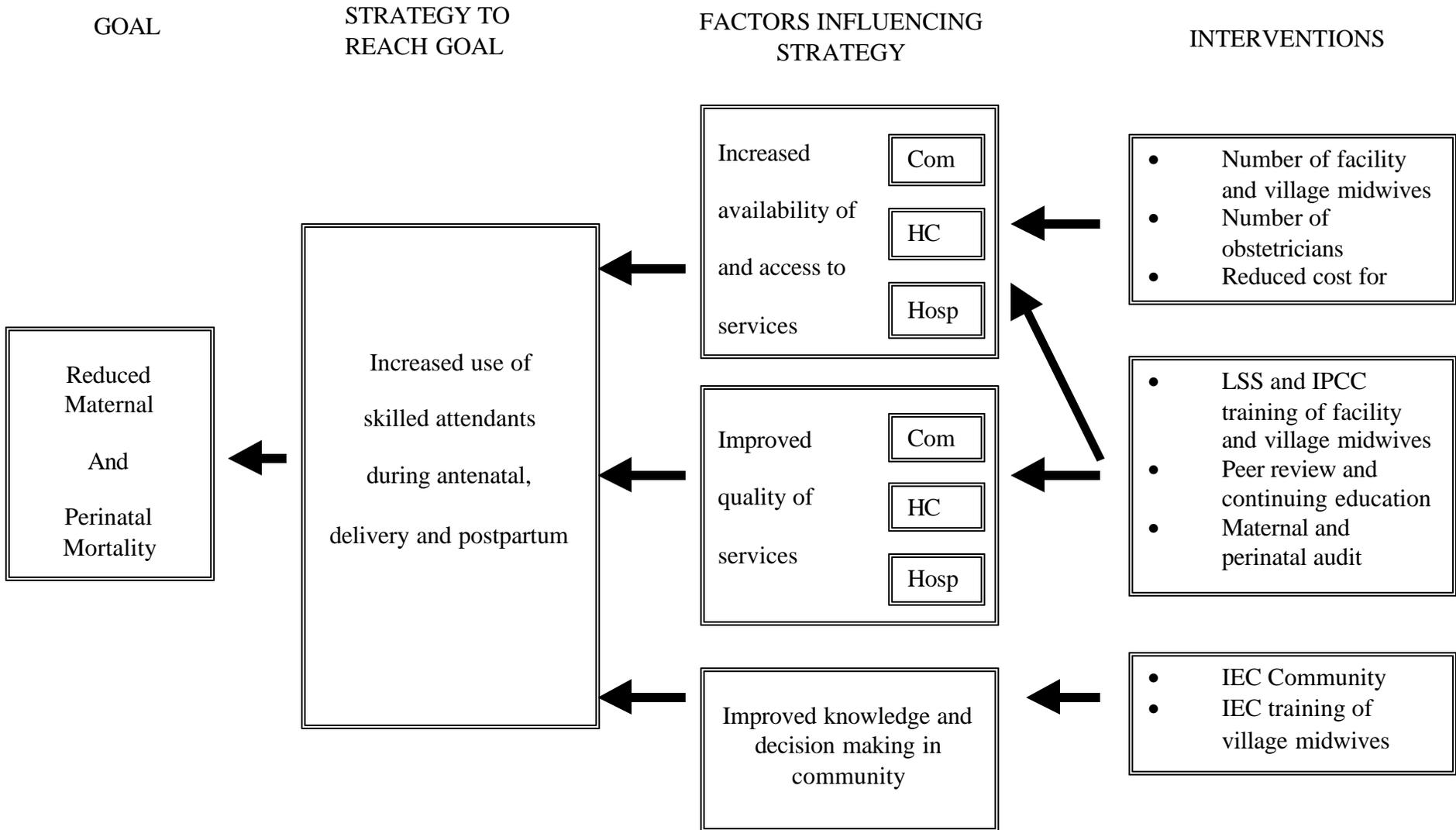


**Figure 1: Map of Indonesia**

The MotherCare strategy in South Kalimantan supported the Government's effort to increase the use of skilled attendants at village level to ensure safe delivery, increase timely and appropriate referral of maternal and neonatal complications and to improve the management of these cases at community referral facilities.

Complementing this effort, MotherCare also focused on increasing the demand for such services through improved community knowledge of danger signs, where to receive adequate services, and improved household decision-making in seeking care. Through the prevention and management of maternal anaemia as an integral part of the enhanced antenatal and postpartum services supported by MotherCare, special attention is also given to this important contributor to maternal and perinatal morbidity and mortality.

**Figure 2: Evaluation framework for MotherCare and Ministry of Health activities**



The conceptual framework for the project is described in Figure 2. MotherCare-assisted interventions have addressed four main areas:

1. **improved quality of services** through in-service training of midwives based in villages, health centres, and hospitals; through a peer review and continuing education system implemented by the district chapter of the national midwifery association; and through a maternal and perinatal audit system set up in the three districts;
2. **improved referral** by strengthening the skills of the village midwives to manage and refer complications, and by strengthening their relationship with the traditional birth attendants who frequently assist at deliveries and with the service providers in referral facilities;
3. **behavioural change** in the community and of providers through an integrated information, education and communications (IEC) strategy; and
4. the **formulation of policies** that will support these initiatives. The Government has addressed increased coverage of services by placing a midwife in each village and ensuring at least one doctor with obstetric skills in each district. In addition, efforts were made to facilitate financial access to services for the poor.

In this report we use the framework presented in figure 2 to assess the effectiveness of the activities put into place by MotherCare and the Ministry of Health. All interventions have been evaluated separately, and the methods and results have been presented in individual reports (see appendix 1). This report presents a brief outline of the evaluation methods and a summary of the key findings of the evaluation.

## EVALUATION METHODS

Understanding whether the interventions put into place by MotherCare were achieving their desired effects was central to the MotherCare activities. Substantial efforts were made to implement the necessary tools to evaluate the interventions. The tools were designed to evaluate the overall effect of the programme as well as the effectiveness of individual components ranging from large-scale population-based surveys to observation of individual practices. No attempts were made to measure changes in health outcome, as the duration of the project was insufficient to expect any detectable changes in the health status of women or their newborns. Instead, the evaluation focused on the measurement of outcomes that were closely linked to the interventions such as increased use of services by skilled providers, improved skills or an increase in knowledge by women and other community members.

Efforts were made to measure changes over time and, where possible, comparison groups were used. The major economic crisis that struck Indonesia during the project years cannot be ignored, and one can only speculate as to the effect this might have had on use and quality of health services. Therefore, the evaluation presented here aims at understanding how and whether the MotherCare interventions could have contributed to the changes in use and the improvement in quality of services that were observed rather than providing precise estimates of the magnitude of the effects of the programme components.

Details of the evaluation tools themselves are presented in separate reports. However, examples of population-based assessments include:

- the community-based surveys conducted in 1996 and 1999, focusing on changes in knowledge of pregnancy and pregnancy related risks; health services for pregnant and postpartum women; and use of health services by pregnant and postpartum women
- the census of village midwives in three districts conducted in 1997 and 1999, focusing on the turnover, profile and activities of the midwives
- the routine data collected from the delivery ward registers in hospitals between 1997 and 1999, aimed at obtaining population-based estimates on the met need for obstetric care.

Targeted evaluation efforts include:

- the observation of interactions between midwives and clients to assess their interpersonal communication and counselling skills
- knowledge and skills assessments of midwives to assess their ability to manage obstetric complications
- the observation of maternal and perinatal audit meetings to better understand the audit process.

## KEY FINDINGS OF THE EVALUATION

### Increased availability and access to services

Geographical access to safe motherhood services was relatively high during the period covered by the MotherCare intervention (Table 1). The number of hospitals offering essential obstetric care falls well within the target of one per 500 000 population set by the World Health Organization. In addition, women also have access to a large teaching hospital in the capital Banjarmasin (Ulin), and three more doctors with obstetric skills were trained and posted in Hulu Sangai Selatan and Barito Kuala.

**Table 1: Health care infrastructure in three districts in South Kalimantan (1997)**

	<b>Banjar</b>	<b>Barito Kuala</b>	<b>Hulu Sangai Selatan</b>
Population	488 872	289 692	192 562
Expected live births	11 977	7 097	4 718
Hospitals	2	1	1
Health centres with bed	2	5	3
Obstetricians	2	-	1
Facility midwife	119	52	57
Village midwife	204	189	145
Ratio midwife <sup>a</sup> to population	1:1513	1:1202	1:953
Ratio midwife <sup>a</sup> to live births	1:37	1:29	1:23

<sup>a</sup> facility and village midwife

The Government's goal to increase the number of skilled attendants has clearly been successful. By 1997, the ratio of midwives (facility and village based midwives) to

population was 1 to 1268 and on average, there was one midwife for every 32 births a year. These numbers remained stable over time, although there were a number of transfers into and out of the area. Between 1997 and 1999, 100 (19%) village midwives left the area, while another 40 were newly established. This high turnover obviously affects the possible effects of interventions, particularly in-service training. In addition, by 1999, of the two thirds of village midwives who were under contract with the Ministry of Health, over half were in the last year of their contract. These findings clearly have implications for the future stability of the workforce.

Interventions to increase availability of iron folate supplements for pregnant women have been successful. Half the village midwives reported selling iron tablets in the three months prior to the 1999 survey to all three target groups: pregnant women (78% of midwives), postpartum women (63%) and newly married women (62%). Packets with 30 iron folate tablets were the most frequently sold (94%) at a mean price of 1271 Rupiah (approximately \$0.20 in 1997<sup>1</sup>). The village midwives reported a mean profit of 325 Rupiah (approximately \$0.05 in 1997).

Fees apply throughout the health sector, and the cost of some services, particularly essential obstetric care, can be high. For example, in 1996 women reported a median expenditure of 600,000 Rupiah for hospitalization involving a caesarean section (approximately \$252 in 1996<sup>2</sup>). The Government has mechanisms in place to facilitate free access to care for the poor, and these efforts were intensified after the economic crisis that began in 1997. In 1998 the Tabulin Fund was established with support from MotherCare to provide impoverished villages with seed money (100,000 Rupiah) to fund community needs for emergencies, particularly for transportation. In 1999, 64% of village midwives reported that the fund was active in their village. In addition, a safety net program was created by the Government to reimburse providers who gave care to families with financial difficulties. Over 65% of the village midwives reported that they received reimbursement for services through this program, albeit mostly for antenatal services. Between 1997 and 1999, the proportion of hospitalised women relying on this safety net increased from 1.5% to 11.4%.

## **IMPROVED QUALITY OF SERVICES**

### **Improved Life Saving Skills (LSS) of facility and village based midwives**

To build on the national strategy of ensuring the presence of a competent midwife at every home delivery, MotherCare worked with the Ministry of Health (MOH), the Midwifery Association (IBI) and the American College of Nurse Midwives (ACNM) to develop an in-service training program to improve the knowledge, skills and confidence of midwives at facilities and in villages. Life Saving Skills (LSS) training, developed by ACNM, was adapted to meet the needs of the midwives in health centres and hospitals, as determined by a training needs assessment conducted in South Kalimantan in November 1995. In addition, MotherCare and ACNM developed a new manual, *Healthy Mother Healthy Newborn Care*, which reinforced the normal aspects of antenatal, labour, delivery and postpartum care for mother and newborn and was used in the training of the village midwives along with the LSS modules for haemorrhage and resuscitation. This course was called Basic LSS to distinguish

---

<sup>1</sup> In 1997, the exchange rate was Rupiah 7500 to the US\$

<sup>2</sup> In 1996, the exchange rate was Rupiah 2383 to the US\$

it from the advanced LSS training provided to facility based midwives. The content of the training is shown in table 2.

**Table 2: Content of training programmes for facility and village based midwives**

<b>Facility midwife</b>	<b>Village midwife</b>	
<b>Advanced LSS (2 weeks)</b>	<b>Basic LSS (11 days)</b>	<b>Internship (2-4 weeks)</b>
1. Problem solving	1. Problem solving	1. Infection prevention
2. Infection prevention	2. Infection prevention	2. Normal labour and delivery care (Stage I,II III and use of partograph
3. Normal antenatal care	3. Normal antenatal care	3. Infant resuscitation
4. Normal labour and delivery care (Stage I,II III and use of partograph)	4. Normal labour and delivery care (Stage I,II III and use of partograph)	4. Bimanual compression for management of haemorrhage
5. Normal postpartum care for mother and baby	5. Normal postpartum care for mother and baby	5. Manual removal of placenta
6. Infant resuscitation	6. Infant resuscitation	
7. Bimanual compression for management of haemorrhage	7. Bimanual compression for management of haemorrhage	
8. Manual removal of placenta	8. Manual removal of placenta	
9. Episiotomy and repair of lacerations	9. Working with community	
10. Hydration and re-hydration	10. Using IEC materials	

The training for village midwives also includes an emphasis on postpartum care as part of an experimental postpartum home visit program. The village midwife is trained to conduct 4 postpartum visits at specific points in the 6-week postpartum period to provide care for the mother and newborn and encourage healthy behaviours such as good hygiene, improved nutrition, and exclusive breastfeeding. In addition, the first postpartum visit (within 6 hours of birth) is intended to prevent postpartum maternal deaths from haemorrhage and newborn deaths. An added benefit of the program is to encourage village midwives to work side-by-side with traditional birth attendants (TBAs) to provide services for mothers that do not compete with those provided by the TBA.

In 1996, two hospitals were selected and established as LSS training centres in South Kalimantan (Ulin and Banjarbaru), based on their capacity to support competency-based training, particularly the availability of adequate clinical experiences for each participant. At the urging of the Ministry of Health, a third training centre was established at another hospital (Martapura) in March 1998. The volume of deliveries at these three hospitals limited the number of participants per session to eight trainees at Ulin and only four trainees at Banjarbaru and Martapura. Each hospital underwent a one-week site preparation during which the training programs were introduced. In addition, 'Mini LSS' training for all the staff in antenatal, labour and delivery and postpartum wards was conducted at each training centre to ensure that the facility as a unit was using the same skills and techniques that were taught in LSS.

The training of midwives in LSS was conducted in a series of two-week courses from April to September 1996 and from June to August 1997. The training of village midwives began in November 1996 and was completed in September 1998.

An integrated system was developed with IBI to support the initial in-service training through regular peer review visits by trained midwives and the incorporation of aggregated information from these visits into continuing education sessions. All LSS-trained midwives were trained as peer reviewers and are expected to visit each other, and village midwives who received in-service education, twice annually. The results of the peer review visits are discussed in semi-annual district meetings and from the results of these meetings, continuing education is offered by specially trained district midwives. These systems are supported by a third system for fund raising. After a fund raising workshop, the districts were provided with seed money through the project and began their own fund-raising activities.

In 1997, the Provincial Ministry of Health requested MotherCare to establish LSS training centres in the other six districts in South Kalimantan province, so that more midwives, including village midwives, could receive the benefits of the basic and advanced LSS training. Unfortunately, the volume of deliveries in the hospitals in these six non-MC districts did not meet the criterion for a LSS training centre, and these facilities could not qualify as LSS training centres. However, to meet the Ministry's request, MotherCare worked with the Ministry of Health to develop a LSS Internship Programme at these six hospitals. The internship programme allows village midwives to spend a period of time (one month is recommended but in reality the time period is defined by the hospital) in the hospital working under the guidance of a LSS trained midwife who serves as a 'clinical instructor'. The purpose of the internship is to fill gaps in the knowledge and skills that the village midwife identifies. The preparation of the hospitals to be sites for LSS internships included procurement of equipment and supplies for the hospitals, and the orientation of hospital directors. LSS training of four midwives as 'clinical instructors' from each hospital took place at the Ulin LSS training centre. The internship program began after September 1998. The contents of the internship program are shown in Table 2.

In total, 128 facility-based midwives from the three MotherCare districts received advanced LSS training and participated in peer review and continuing education activities, 18 of whom were midwife trainers. Between 1996 and 1998, 284 village midwives from MotherCare districts received basic LSS training and participated in peer review and continuing education. As of March 1999, 52% of the village midwives in the three MotherCare districts had received training, 93% from Hulu Sungai Selatan, 39% from Barito Kuala, and 35% from Banjar.

Six tools were designed to capture changes in knowledge, confidence, skills, and application of skills in a clinical situation. Five key skills were chosen for competency assessment: infection prevention (how to get equipment ready for the next delivery), use of the partograph, manual removal of placenta, bimanual compression for management of postpartum haemorrhage, and neonatal resuscitation.

The evaluation indicates that the training program (supported by peer review and continuing education) has significantly improved the ability of both the facility-and village-based midwives to perform the five key life saving skills. In addition, significantly more of the midwives who participated in this program were defined as 'competent' in their ability to perform these five key skills than those who had not participated in the program (Table 3).

**Table 3: Effect of the training, peer review and continuing education programme on mean skill scores and % ‘competent’ providers for facility and village based midwives, and costs of programme**

	Facility midwife		Village midwife		
	MotherCare N=33	Untrained n=24	MotherCare n=33	Intern n=28	Untrained n=47
<b>Effect of training</b>					
Mean skill score	67% <sup>a</sup>	40%	71% <sup>b</sup>	62% <sup>b, c</sup>	51%
<i>Infection prevention</i>	63% <sup>a</sup>	49%	79% <sup>b</sup>	74% <sup>b, c</sup>	69%
<i>Manual removal of placenta</i>	96% <sup>a</sup>	60%	93% <sup>b</sup>	74% <sup>b, c</sup>	59%
<i>Bimanual compression</i>	50% <sup>a</sup>	20%	42% <sup>b</sup>	35% <sup>b, c</sup>	27%
<i>Neonatal resuscitation</i>	59% <sup>a</sup>	24%	67% <sup>b</sup>	53% <sup>b, c</sup>	32%
<i>Partograph</i>	68% <sup>a</sup>	48%	76% <sup>b</sup>	76% <sup>b</sup>	66%
% ‘competent’	46% <sup>a</sup>	0%	67% <sup>b</sup>	25% <sup>b, c</sup>	6%
<b>Cost per trainee (US\$)</b>					
Observed cost	1343	-	1214	1607	-
Expansion in South Kalimantan	320	-	253	58	-
Expansion in new province	512	-	384	269	-

<sup>a</sup> p<0.05 when compared with untrained facility midwife

<sup>b</sup> p<0.05 when compared with untrained village midwife

<sup>c</sup> p<0.05 when compared with MotherCare village midwife

Receiving advanced LSS training and participating in peer review and continuing education increased the mean scores of midwives from 40 to 67% and the percentage ‘competent’ from 0% to 46%. These increases were observed for all five skills listed above. Similarly, for village midwives the basic LSS training with peer review and continuing education increased mean scores from 51 to 71%, and the percentage ‘competent’ from 6 to 67%. The internship program increased the knowledge and skills of the village midwives, but not to the same level as the MotherCare LSS training with the peer review and continuing education programs.

The impact of the training, peer review and continuing education program is probably greater than that estimated in this evaluation. Although the facility and village midwives from districts not covered by the MotherCare program that served as a comparison group had not formally received the LSS training, many of them had access to information contained in the training manuals through their colleagues who participated in the internship program. Their knowledge and skills might therefore not have represented the knowledge and skills before the MotherCare program.

The actual costs of these training programs were relatively high, but the costs of expansion and replication would be substantially lower. The gains in knowledge and skills shown above were obtained at an estimated cost of \$1343 per facility midwife and \$1214 per village midwife. Expansion of these programs to other provinces in South Kalimantan could be accomplished at a cost of \$320 per facility midwife and \$253 per village midwife. Replication of these programs beyond South Kalimantan would require some of the start-up activities including establishing training centres, training of trainers, establishing peer review and continuing education systems and internship sites. Assuming a similar scale of production, the estimated replication costs beyond South Kalimantan would be \$512 per facility midwife and \$384 per village midwife.

The content and structure of the MotherCare training program seems to be appropriate to provide midwives with the necessary skills to adequately manage the most frequent complications. The limitations of a two-week in-service education program to increase the skill level of midwives and village midwives to an acceptable level needs to be recognised however. High levels of competency in all five skills were not achieved by all participants in the training program. A short in-service education course cannot substitute for a 2-3 year midwifery program. The Ministry of Health will have to decide whether the extra benefits are worth the extra costs. Already, there seems to be commitment to expanding LSS and peer review/continuing education programs within and beyond South Kalimantan.

### **Improved interpersonal communication and counselling skills of village midwives**

Significant communication barriers between village midwives and the community in which they served were identified in the assessment conducted at the beginning of the MotherCare project. In May 1997, MotherCare, with technical assistance from PATH, conducted a 3-day training in Interpersonal Counselling and Communications (IPCC) for every village midwife in the three MotherCare districts. The training was designed to enhance their ability to effectively counsel and communicate with women and community members. Components of effective counselling and communication included collection and dissemination of pertinent information as well as the establishment of a relationship of trust and confidence with women. Anaemia was the subject used in the demonstration of the IPCC skills and the MotherCare anaemia information, education and communication program and materials were used as the subject matter for role-plays and practice of the IPCC skills.

The evaluation of the IPCC training was conducted in two phases. In phase one (three months following training) village midwives who received and who did not receive IPCC training were observed in several provider-client interactions. A year later, the IPCC trained village midwives were observed again. Scores were calculated from the results of the observations to quantify the IPCC skills of the village midwife, and exit interviews were conducted among the women observed in the interactions. Scores were constructed from the key skills taught (table 4).

**Table 4: Interpersonal communication and counselling (IPCC) skills taught during IPCC training, and used to construct score for assessment**

SKILL	DESCRIPTION OF SKILLS
Greeting	How the village midwife welcomes her client
Active listening	Clarification (asking the client to explain the problem), paraphrasing (rewording questions from patients), reflection (using the women’s own words, and summarising the discussion)
Attitude	Includes patience, avoiding the use of a rude voice or criticism, maintaining eye contact
Physical exam	Explaining steps and results of physical exam
Body language	Non-verbal communication
Conversation style	Ability to use appropriate language
Next appointment	Explicit communication with woman to set up appointment

The IPCC training did enhance the IPCC skills among the village midwives. IPCC trained village midwives had higher mean scores than those without IPCC training (Table 5). Women who were seen by an IPCC trained village midwife were more likely to report that they received important or new information, and, among those who had a physical exam, to have had the purpose of the physical exam explained, than women who did not see an IPCC trained village midwife. Over time, the IPCC skills decreased slightly. Mean scores among IPCC trained village midwives decreased from 78% at three months after training to 64% at 15 months after training. This decline was confirmed by the exit interview data.

**Table 5: Effect of training on interpersonal communication and counselling (IPCC) skills of village midwife**

<b>Does training enhance IPCC skills among village midwives?</b>		
	<b>Trained village midwife</b>	<b>Untrained village midwife</b>
Mean scores of village midwives	78%	54%*
Women report receiving important new information	87%	58%*
Women report receiving a physical exam	79%	83%
Women report that the purpose of the exam was explained	83%	45%*
<b>Do IPCC skills persist over time?</b>		
	<b>August 97</b>	<b>September 98</b>
Mean scores of trained village midwives	78%	64%
Women report receiving important new information	87%	68%*
Women report receiving a physical exam	79%	80%
Women report that the purpose of the exam was explained	83%	41%*
<b>Does LSS training improve IPCC skills among Bidan di desa?</b>		
	<b>LSS trained village midwife</b>	<b>No LSS training</b>
Mean scores of village midwife	76%	62%*
Women report receiving important new information	85%	40%*

\*p<0.05

It appears that LSS training received by the village midwife after the IPCC training enhanced their IPCC skills at the evaluation 15 months post-training. The IPCC trained village midwife who also received LSS training had higher scores than those IPCC trained village midwives without LSS training.

The evaluation allowed us to assess the impact of the IPCC training on counselling and care related to anaemia. The anaemia content module in IPCC training increases the completeness of counselling about anaemia topics among IPCC trained village midwives (table 6). Evidence from both village midwives' observations and patient exit interviews support this finding. Among IPCC trained village midwives, the thoroughness of their anaemia counselling seems to increase over time. This increase may be due to reinforcement received about anaemia received in LSS training.

**Table 6: Effect of interpersonal communication and counselling (IPCC) training on the completeness of anaemia counselling among village midwives (percent of village midwives who discussed topic with at least one of their clients, from observation during 4 patient visits)**

	Trained (N=30) %	Untrained (N=16) %
Explains what anaemia is	73*	6
Explains the effects of anaemia on mother	83*	0
Explains the effects of anaemia on baby	67*	0
Explains benefits of iron pills	87*	31
Explains side effects	67	38
Suggests taking iron in the evening	90	81
Suggests taking iron with fruit	63*	19
Suggests taking iron w/out coffee or tea	80*	50
Suggests taking iron after meals	73*	0
Suggests taking 1 pill/day during pregnancy	83*	50
Suggests taking 1 pill/day post-partum	56	44
Suggests where to buy iron pills	70*	7

In summary, the IPCC training clearly resulted in more effective interactions between village midwives and their patients. However, IPCC trained village midwives still need improvements in some skills such as techniques for active listening, asking if women have questions and explaining the physical exam before conducting it. Also, some IPCC skills that were new were not sustained over time, and IPCC skills, like all skills, need reinforcement periodically. As with LSS training, IPCC training should become part of medical, nursing and midwifery education programs so that appropriate IPCC behaviours become a standard practice among providers.

### **Quality improvement through district-based audit**

During the project, MotherCare worked closely with the provincial- and district-level MOH in South Kalimantan to initiate the implementation of the maternal and perinatal audit (MPA). Through the MPA, maternal and perinatal mortality cases are reported and village midwives conduct a "verbal autopsy," interviewing community members to determine the causes of death, both medical and non-medical. The findings from the "verbal autopsy" and the clinical, managerial, and socio-cultural factors contributing to mortality are then reviewed at a MPA meeting with health centre, district-level Ministry of Health, district hospital staff, and TBAs if they are involved in a case. With MotherCare assistance, the MPA is now being conducted regularly at the regional (several health centres) and district levels in all three districts supported by MotherCare. The MPA is now also being implemented in other districts. Most of the village midwives from the MotherCare districts have participated in an audit meeting.

Between 1995 and 1999, 130 maternal deaths were reported through the MPA (50 in Banjar, 25 in Barito Kuala and 55 in HSS). About one quarter of the women who died had been seen by a facility based or village midwife, but more than one third (38%) died without assistance from any trained attendant. The leading cause of death was haemorrhage followed by

hypertensive diseases (table 7). While we could not determine how many of the hospital deaths were also included in the MPA, the difference in causes between hospitals and the MPA suggests that for certain causes (particularly for haemorrhage) further efforts are needed to help women reach life saving medical care in a timely manner. Death due to Sepsis, on the other hand, appears to be equally low in the hospital and MPA-based data, confirming the suggestion that sepsis might have become a less important cause of death in Indonesia.

**Table 7: Causes of maternal death reported in health facilities and through MPA programme (reported in percentages)**

Cause of death	MPA (1995-1999)	Hospitals (1996-1997)
	%	%
<b>DIRECT OBSTETRIC</b>		
Early pregnancy deaths	2	3
<i>Haemorrhage</i>	41	17
<i>Hypertensive diseases</i>	32	51
<i>Sepsis</i>	5	3
<b>Dystocia</b>	1	20
Other	2	6
<b>INDIRECT OBSTETRIC</b>	12	-
<b>Unknown</b>	5	-
<b>All</b>	100	100

Factors contributing to the death include delays in decision-making (77%), delays in reaching the health provider or facility (33%) and poor quality of care at the health provider or facility level (60%). Economic constraints were believed to have contributed to 37% of deaths, while distance to a health provider or facility, or transport problems, did not appear to be prominent. Interestingly, the review team found that refusal to seek care might have contributed to half of the deaths.

More importantly, the MPA has resulted in a number of recommendations including the need for additional training of midwives, a blood bank and specific drugs, and for standardized treatment guidelines (table 8). In some instances, these recommendations have led to concrete improvements in some aspects of the district health system. For example, in HSS district it became clear through the MPA that the unavailability of appropriate medication at the community-level might have contributed to a number of maternal deaths caused by eclampsia. In response to this finding, the district health team decided that magnesium sulphate should be supplied to the village midwives as a standard part of their drug supply. In another instance, inconsistencies in case management between midwives in the community health centres and village midwives led to the development and distribution of a standard protocol for handling obstetrical emergencies. The Ministry of Health is

currently developing a national standard essential obstetric protocol for midwives and this locally developed protocol is serving as an interim measure until the national standards are promulgated.

**Table 8: Examples of recommendations emanating from the MPA**

<p style="text-align: center;"><b>Recommendations involving the health sector</b></p> <ul style="list-style-type: none"><li>• Provide village midwives with better equipment and drugs for management of emergency cases</li><li>• Develop standard protocols for the management of emergency cases at village level</li><li>• Supply Magnesium Sulphate to all village midwives</li><li>• Increase supervision by obstetrician to health centres and village midwives</li><li>• Provide training to village midwives for manual removal of placenta</li><li>• Provide training to village midwives for the management of shock</li><li>• Supply mechanical ventilators to all hospitals</li><li>• Sanction the midwives who are absent from their village of responsibility at the time of a delivery (e.g. delay salary payment)</li><li>• Strengthen the national Safe Motherhood movement</li><li>• Encourage village midwives and health centres to conduct the verbal autopsies soon after death</li><li>• Train village midwives in the concepts of MPA to help reduce their fears at participating in the MPA</li></ul> <p style="text-align: center;"><b>Recommendations involving other sectors</b></p> <ul style="list-style-type: none"><li>• Organize village referral teams involving community members</li><li>• Set up community fund to pay for emergency referrals</li><li>• Identify transport mechanism in community (i.e. car, boat) that could be made available in case of emergency</li><li>• Encourage the village midwife to approach religious leaders when the mother or her family refuse referral</li><li>• Encourage the use of the 'health certificate' for poor families</li></ul>
---

Implementing a comprehensive MPA system takes time and the current MPA system in South Kalimantan is only the start of a long process. The MPA system in Indonesia is unique in that it is not solely a means of researching and documenting maternal deaths. Rather, it is an ongoing tool used by the district health offices to foster action to remove obstacles to high quality care. The MPA, with its active involvement of key persons in the health sector, not only ensures ownership of the findings but also encourages implementation of the proposed changes. While this process of internal audit is difficult and time-consuming, the accountability of both health providers and policy makers dictated by this approach may well be one of the most critical factors towards improving the responsiveness of the health sector to the high levels of maternal mortality. The MPA also fosters a closer working relationship

between levels of health providers by bringing together facility-based and community-based providers to analyze and address the causes of mortality and morbidity in their areas.

From MotherCare's observations of the MPA process, some suggestions for improvement were made, including:

- a greater involvement and better definition of the role and responsibilities of the provincial team
- less emphasis on the sole responsibility of the village midwives in the prevention of maternal death
- inclusion of cases of severe maternal morbidity as a topic for audit
- conduct facility-based as well as community-based audits
- incorporate scientific evidence into the review process

### **Improved Knowledge and Decision-making in the Community**

In 1996, MotherCare, with support from PATH, conducted a small study in order to better understand the barriers to seeking care and decision-making in cases of obstetrical emergencies (community diagnosis). From the findings of that study, a Safe Motherhood Information, Education and Communications (IEC) strategy was developed at the community level, targeting pregnant and postpartum women and key decision makers in the community (husbands, mothers-in-law, traditional birth attendants and community/religious leaders). The overall goals of the campaign were to enhance:

1. the planning for emergencies during pregnancy, delivery and post-partum,
2. the recognition of haemorrhage as a danger sign by women and their families,
3. the use of the village midwife as a source of information about safe motherhood,
4. the use of a village midwife as an attendant at delivery (with or without traditional birth attendants),
5. the needs of pregnant women to receive special attention from their husbands and family,
6. the knowledge of TBAs on when to refer women with a complication, and
7. collaboration between TBAs and village midwives.

The following materials were developed:

- a contingency plan brochure targeting pregnant women and their families
- two flyers targeting husbands and families explaining the need to take special care of a woman during pregnancy, delivery and in the postpartum period and to refer a woman in case of an emergency (especially haemorrhage)
- a poster targeting the community explaining the role of the village midwife and the services she offers
- a booklet targeting traditional birth attendants explaining complications and when to refer
- two radio spots aired in the community, explaining the need to go to the village midwife for check-ups in the case of danger signs (haemorrhage and malposition of the baby) and refuting common misconceptions about complications

Since complications are difficult to recognise and the IEC campaign aimed to increase the use of the village midwife by women, the village midwife was chosen as the main channel of communication. Village midwives were given the IEC materials and training on how to counsel women using the materials as part of the two week LSS training. The IEC print materials were designed to be distributed to women by the village midwife during prenatal and postpartum counselling.

Monitoring of these materials was done in December 1998 in HSS district only and included a sample of 31 village midwives, 96 pregnant and 32 postpartum women, 62 mothers-in-law and 66 husbands of pregnant women and 32 traditional birth attendants. Results showed that while 87% of village midwives monitored had received all of the IEC materials, coverage in the community varied among the target groups. Fifty-six percent of women surveyed had seen the materials designed for them; 30% of husbands and mothers-in-law surveyed had seen the IEC materials targeting them and 81% of the traditional birth attendants surveyed had seen the booklet.

Monitoring results for TBAs showed that all but one had worked with a village midwife in the previous 3 months and 97% were happy working with her, as they felt safe when she was also present at a birth. This suggests that the strategies implemented through the IEC program did enhance the collaboration between village midwives and TBAs. However, since no baseline or post-survey information was gathered from TBAs, conclusive significance of these interventions cannot be determined.

To evaluate the impact of the Safe Motherhood IEC campaign, results from the community surveys conducted in 1996 to 1999 were compared to measure changes in women's knowledge about safe motherhood and the use of village midwives for information on pregnancy and delivery related services. In all districts, 21% of women who had given birth in the previous year or were currently pregnant had seen the brochure, 8% had discussed it with a village midwife and 10% had discussed it with their husbands. In HSS, where all village midwives had completed LSS training more than one year before the survey, 41% of women had seen the brochure, 20% had discussed it with a village midwife and 26% had discussed it with their husbands.

The percentage of women who mentioned vaginal bleeding as a danger sign without being prompted significantly increased from 8% in 1996 to 17% in 1999 (table 9). For malposition of the baby, the percentage significantly increased from 7% in 1996 to 14% in 1999. These two danger signs were specifically mentioned in the IEC print materials and radio spots. While the percentage of women who mentioned fainting, fits, convulsions and anaemia increased, the changes were not significant. Overall, the percentage of women who named at least one of the five danger signs increased from 39% to 52% between the two surveys ( $p < 0.05$ ).

**Table 9: Percentages of women naming selected pregnancy danger signs, by year of survey**

Danger sign	Survey year	
	1996 % (n=885)	1999 % (n=1348)
Vaginal bleeding	8	17*
Fainting, fits, convulsions	5	7
High fever	7	6
Anaemia	22	29
<b>Baby position</b>	7	14*
One or more danger signs	39	52*

\* p<0.05

When women were asked where or from whom they had received information about health and health problems during pregnancy and delivery, the percentage of women who mentioned a village midwife rose significantly from 12% in 1996 to 40% in 1999 (table 10). The percentage of women who found “health service personnel” a convincing source of information significantly increased from 73% in 1996 to 87% in 1999.

**Table 10: Percentages of women reporting that they had received information about health and health problems in pregnancy or when having a baby**

Source of information	1996 % (n=884)	1999 % (n=1360)
Village midwife	12	40
Facility midwife	28	33
Doctor	10	9
Puskesmas	43	35
Posyandu	35	22
Relatives or friends	30	28
Radio	10	6
TV	20	16

(Multiple replies possible)

The overall picture that emerges from this analysis is that the percentage of women who utilized village midwives and/or health care providers for information about safe motherhood and as a delivery attendant significantly increased during the time of the MotherCare program in South Kalimantan. This suggests that changes in the decision-making process of women and families concerning pregnancy and delivery services have occurred, though further conclusions cannot be ascertained. The effect of the program on the percentage of women and families who plan for emergencies cannot be determined, in part due to incomplete evaluation. While women’s overall knowledge of danger signs did not change, their knowledge of the danger signs specifically mentioned in the IEC materials did increase. The collaboration between TBAs and village midwives was enhanced by the MotherCare

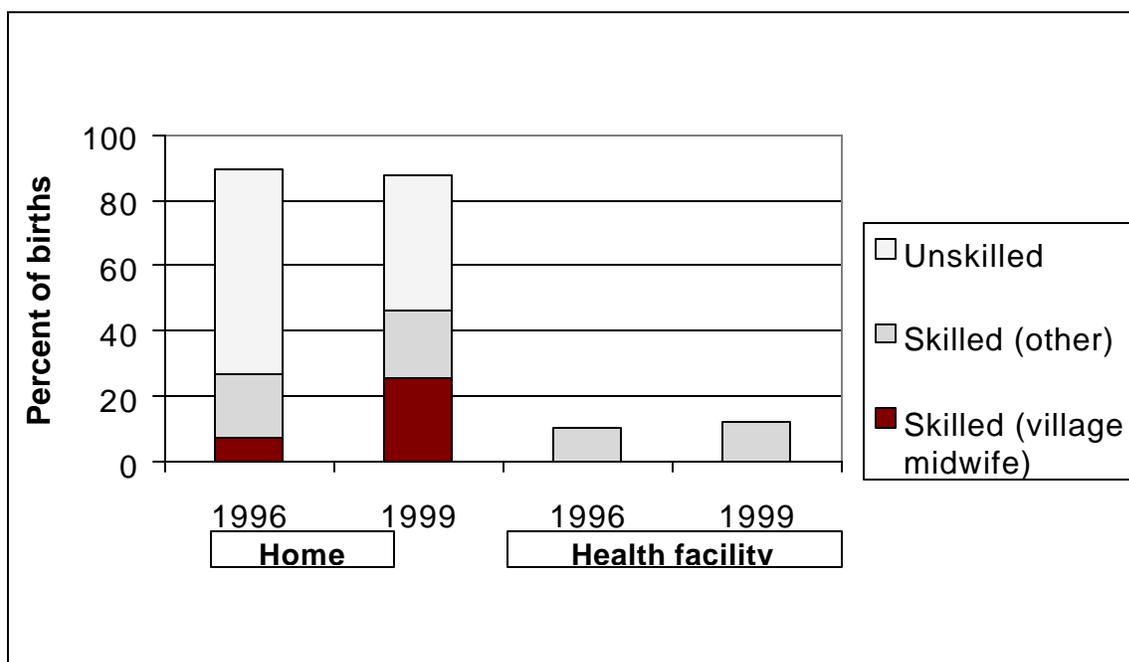
program. Evidence suggests that both training of midwives and outreach to the TBAs contributed to this change.

### Increased use of maternal health services

The MotherCare interventions aimed at increasing the appropriate use of maternal health services in a number of ways. All components of the MotherCare program supported the Government’s effort to increase the use of skilled attendants at the village level and timely and appropriate referral of maternal and neonatal complications to higher levels of care. The program particularly encouraged village midwives to work side-by-side with TBAs to provide services for mothers that do not compete with those provided by the TBA. The training for village midwives also included an emphasis on postpartum care as part of an experimental postpartum home visit program. It also increased their ability to communicate with women and community leaders. In addition, the use of iron pills during pregnancy and postpartum was encouraged through the IEC programme.

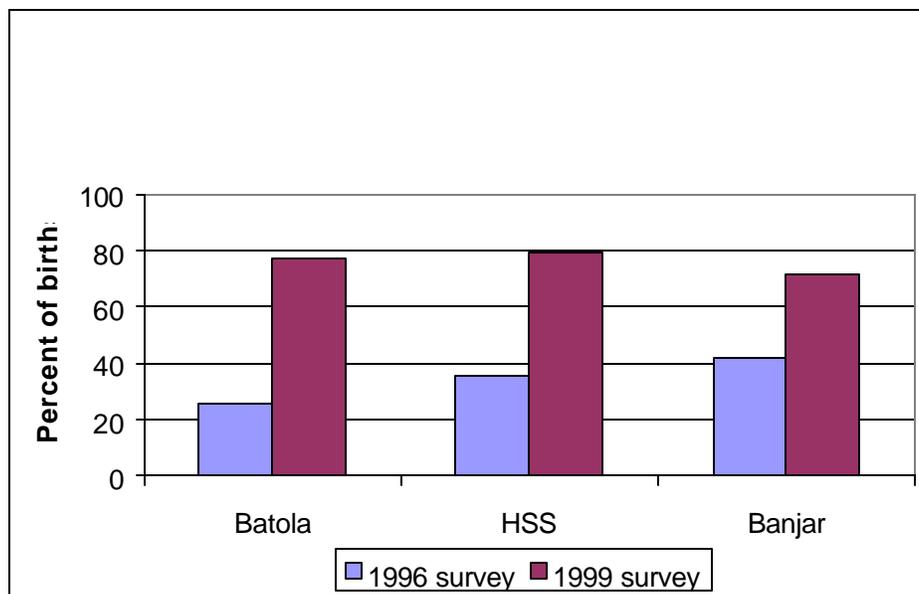
The combined MotherCare-Government strategies have clearly resulted in a dramatic increase in skilled birth attendance. In the period 1993 to 1996, the majority (90%) of births took place at home, and only 37% of all births (home and facility) were attended by a skilled attendant (doctor or midwife)(Figure 3). By 1998-99, 510 midwives were posted in the three districts and skilled attendance at delivery had increased to 59% (p<0.05). The greatest increase was in home deliveries with a village midwife present, and a large part of this increase was in deliveries where a village midwife and a TBA were both reported. On average, the village midwife reported attending two deliveries per month. The proportion delivering at home remained stable at 88% of births (p=0.3).

**Figure 3: Percent of births with skilled attendant**



The program also had a major impact on postpartum visits. Between 1993 and 1996, only 36% of women reported the visit of a village midwife during the 40 days seclusion period. By 1999, 72% of women said they had been visited by a midwife postpartum (Figure 4). Among women seen by a trained village midwife, over 60% received the four visits defined in the postpartum care program (within 6 hours, at 3 days, at 2 weeks and at 6 weeks). In addition, 40% of women were visited within 7-12 hours of delivery, a critical time for the prevention of maternal and neonatal ill-health.

**Figure 4: Percent of births with postpartum visit**



To reduce maternal mortality, women with severe complications need to be referred to higher levels of care. In any population, at least 1% of pregnant women are expected to require a facility-based obstetric intervention to save the mother's life. The number of life-saving obstetric interventions expressed as a proportion of estimated live births has been suggested as an indicator of the extent to which the need for life-saving obstetric care is met. In the three districts in South Kalimantan, the proportion admitted to hospital with a complication requiring a life-saving intervention declined from 1.1% to 0.7% ( $p < 0.05$ ). Similarly, the proportion admitted to hospital for a caesarean section (from admission records and population birth rates) declined from 1.7% to 1.4% ( $p < 0.05$ ) (table 11).

**Table 11: Trends in proportions of live births in the population admitted to hospital for caesarean sections and life-saving interventions**

	Banjar	Barito Kuala	Hulu Sangai Selatan	ALL
<b>Proportion of births admitted to hospital for a caesarean section</b>				
1997	2.3	0.7	<b>1.7</b>	1.7
1998	2.1	0.6	<b>1.5</b>	1.5
1999	2.1	0.4	<b>1.0</b>	1.4
<i>Relative risk<sup>a</sup></i>	<i>0.91</i>	<i>0.66</i>	<b><i>0.59*</i></b>	<i>0.81*</i>
<b>Proportion of births admitted to hospital for life-saving interventions<sup>b</sup></b>				
1997	1.5	0.5	0.9	1.1
1998	1.2	0.5	0.7	0.9
1999	1.0	0.4	0.4	0.7
<i>Relative risk<sup>a</sup></i>	<i>0.68*</i>	<i>0.72</i>	<b><i>0.43*</i></b>	<i>0.64*</i>

\*p<0.05

<sup>a</sup> relative risks comparing 1999 and 1997

<sup>b</sup> interventions to save the woman's life include a caesarean section or hysterectomy for severe antepartum haemorrhage, placenta praevia, abruptio placentae, severe postpartum haemorrhage, foetopelvic disproportion (including ruptured uterus), brow presentation or transverse lie; and all cases of eclampsia.

In summary, the strategy of a midwife in every village has clearly resulted in a dramatic increase in skilled attendance at birth and in the postpartum period, but not as yet in any increase in specialised obstetric care for the few women needing it. Although the midwives may have treated more complications at home, it is unlikely that they could have prevented most of the severe complications that require a major hospital intervention to save the woman's life. The extremely low and declining population-based caesarean section rates also attest to the increasing unmet need for obstetric care in this population. Despite the Government's efforts to overcome financial constraints for the poor during the economic crisis, the high costs of emergency obstetric interventions may well have remained the most important obstacle to the use of hospital care. Poor countries that have successfully reduced maternal mortality have done so in a context of free health care. Affordable obstetric care needs to be made available particularly to women who can be saved through an emergency life saving intervention.

## CONCLUSIONS

The Government of Indonesia's goal of bringing high quality obstetric services closer to the women who need it has clearly been successful. The MotherCare programme has effectively contributed to this goal by strengthening the Government's efforts through the training and continuing education of midwives in life-saving, communication and counselling skills; by initiating and supporting the maternal and perinatal audit process; and by providing women and their families information on how to make pregnancy safer. All these activities were implemented as part of an integrated package, and their mutually reinforcing effect was probably instrumental in their success. In considering which activities to expand upon, the Ministry of Health will therefore not only have to decide which of these activities were 'value for money', but also the extent to which an integrated approach was essential in effecting change. The success of the training programme in improving the midwife's skills and confidence, for example, was at least in part due to the continuing and regular supervision of

midwives through the peer review and audit meetings. Similarly, the increased collaboration between midwives and TBAs was the result of repeated reinforcements during training sessions and audit meetings.

One of the key challenges facing the Indonesian Government is how to sustain the extensive village based midwifery programme. A short in-service training programme cannot substitute for a three-year midwifery programme, and the training needs identified by MotherCare should be incorporated into existing medical, nursing and midwifery education programmes to ensure that doctors, midwives and nurses graduate with adequate skills for the tasks expected from them. Initiatives to better train midwives will eventually contribute to reductions in maternal mortality, but maternal health will not improve through midwifery training alone. Policy decisions and actions are still required to increase referral and ensure quality services at referral level. Most importantly, concerted efforts and commitment will be needed to contain costs of maternal health services, and to make services affordable for the poor.

## APPENDIX I

Evaluation reports for individual components of the MotherCare programme in South Kalimantan. These reports are available from MotherCare

- Audit Maternal Perinatal
- Indonesia Training Manual for IPC/C on Anemia.
- Beck, Diana and Surekha Cohen. *Building Quality into a Training and continuing Education System for Midwives: A System Approach - A Guide for Program Planners*. 1997.
- Beck, Diana and Yanna Annas. *Training Needs Assessment Report - South Kalimantan*. Arlington, VA: MotherCare/John Snow, Inc., 1995.
- Beck D, ST Buffington, J McDermott. *Healthy Mother and Healthy Newborn Care - A Guide for Caregivers and A Reference for Caregivers*. Arlington, VA: MotherCare/JSI and ACNM, 1998. (In English and Bahasa Inonesian)
- Bull, Heather. *Organizational Development Activities. Ikatan Bidan Indonesia-MotherCare, Final Report 1995-1998*. Arlington, VA: MotherCare/John Snow, Inc. 1998.
- Cohen, Surekha and Ali Zazri. *Reproductive Tract Infections/Sexually Transmitted Diseases among Women of Reproductive Age Attending Outpatient Clinics in Three Hospitals in South Kalimantan, Indonesia*. Arlington, VA: MotherCare/John Snow, Inc., 1998.
- Huque, Zahid. *MotherCare Situation Analysis Modules* (Adapted from WHO). 1995.
- Jus'at Idrus, Endang Achadi, Rae Galloway, et al. *Reaching Young Indonesian Women through Marriage Registries: An Innovative Approach for Anemia Control*. Journal of Nutrition, 130(2S Supp), 2000.
- Marsaban Stirling, Julie and Lara Zizic. *Working Paper on the Community Diagnosis MotherCare Safemotherhood Project, - South Kalimantan 1996*. Arlington, VA: MotherCare/John Snow, Inc., 1997.
- Marshall Tom, Achadi Endang, Zazri Ali, et al. *Maternal and Neonatal Health in Indonesia: Baseline Findings from a Community Survey, 1996*. Arlington, VA: MotherCare/John Snow, Inc., 1998.
- Marshall Tom, Achadi Endang, Zazri Ali. *Maternal and Neonatal Health in South Kalimantan, Indonesia: Linked results from the 1996 and 1999 Community Surveys*. 2000
- McDermott, Jeanne, Diana Beck, Ibu Dwi Yani. *Training Evaluation Report: MotherCare/Indonesia*. Arlington, VA: MotherCare/John Snow, Inc., 1999.
- McDermott, Jeanne, and M. Wirth. *Bidan di Desa (BDD) Profile Survey 1997*. Arlington, VA: MotherCare/John Snow, Inc., 1998.
- Robinson, J. Stephen. *Using Traditional Birth Attendants to Improve Iron Tablet Utilization by Pregnant Women- Maluku Province, Indonesia*. Project Concern International, 1998.
- Ronsmans C., Campbell OMR, Mc Dermott J., Kobinsky M. *To need or not to need; questioning the indicators of need for obstetric care*. Arlington, VA: MotherCare/John Snow, Inc., 2000
- Ronsmans Carine, Endang Achadi, Surekha Cohen, and Ali Zazri. *Women's Recall of Obstetric Complications in South Kalimantan, Indonesia*. Studies in Family Planning Vol. 28, No. 3 (1997).

- Supratikto Gunawan, Wirth Meg E., Achadi Endang, Cohen Surekha, and Ronsmans Carine. *A district-based audit into the causes and circumstances of maternal death in South Kalimantan, Indonesia*. Arlington, VA: MotherCare/John Snow, Inc., 2000
- Wirth, Meg, S. Cohen, and Garsmedi, et al. *An Essential Safe Motherhood Intervention: The Maternal Perinatal Audit System in South Kalimantan, Indonesia*. Arlington, VA: MotherCare/John Snow, Inc., 1998.
- Wreksono, Sony and Diana Beck. *The Situational Analysis (SA) Report in South Kalimantan*. November 1995. Arlington, VA: MotherCare/John Snow, Inc., 1995.
- Zizic, Lara and Endang Achadi. *Promoting Behavior Change among Providers and Communities to Support Safe Motherhood: An Integrated Approach to IEC*. Jakarta, Indonesia: MotherCare/John Snow, Inc., 1999.
- Zizic Lara, Jus'at Idrus, Zazri Ali, Pareja Reynaldo, Cohen Surekha, Achadi Endang, Setiaji Agoes. *Information, Education and Communication Campaign in South Kalimantan, Indonesia*. 2000

- .