

**Increasing access to skilled attendants for making safer home birth:**

**A case of rural Pakistan**

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## Abstract

Increasing the proportion of births attended by a skilled attendant is a measurable target for maternal health improvement that influences maternal mortality. In Pakistan, the maternal health situation has slightly improved in urban areas, but there is still a huge urban-rural disparity. Most childbirths that occurred at home were assisted by unskilled attendants. Although there are skilled attendants in the countryside, women are still unable to access them.

This research addresses the question of finding ways and means of increasing continued access to skilled attendants from pregnancy to postpartum and thus making childbirth at home safer. One approach is to achieve this through skilled home-based birth attendants, thus ensuring continuity of care from pregnancy to postpartum and consequently better outcomes for women and their babies. I will focus on the nurse midwife and midwife as the skilled birth attendants, because they live close to the community and therefore are more accessible than the doctors.

This paper employed a review of the literatures and data analysis. The data was collected by interviewing all 257 women living in rural Islamabad who had given birth within the past four months and were enrolled from LHWs' registration books.

I found two models of care for childbirth in rural Islamabad: one is home-based birth by a *dai* and another is facility-based birth by a doctor. Neither of the models ensure continuity of care by skilled personnel throughout the period from pregnancy to postpartum. Women having home-birth sought prenatal care from significantly more health care providers than those having facility-birth. The professional midwives, who live in the community and provide home-birth care, are missing in rural Islamabad. I assume that this is one of the possible reasons why continuity of care can rarely be provided to rural women.

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## Introduction

Improving maternal health is one of the Millennium Development Goals put forth by the United Nations in 2000. The target is specifically to reduce maternal mortality by three-quarters between 1990 and 2015.

Increasing the proportion of births attended by a skilled attendant is a measurable target for maternal health improvement that influences maternal mortality. It is targeted for phase-wise improvement by the UN: "By 2005, where the maternal mortality rate is very high, at least 40 percent of all births should be assisted by skilled attendants; by 2010 this figure should be at least 50 percent and by 2015, at least 60 percent" (UN, 1999). Some developing countries, especially in South Asia, have made efforts to increase the proportion of births assisted by skilled attendants, but the pace of improvement in access to skilled attendants is slow.

The government of Pakistan has put efforts into improving Maternal and Child Health. In urban areas, the maternal health situation has slightly improved, but there is still a huge urban-rural disparity. Generally, most of childbirths that were occurred at home assisted by unskilled attendants. Nationwide hospital-based childbirths are still low. Although there are skilled attendants in the countryside, women are still unable to access them. Siddiqi et al. (2003) point out a lack of clear human resource policy for MCH services, poor personnel management, as well as a shortage of skilled birth attendants in the community. There is wide gap between the policy intentions and actions, and where policy seems to focus on making childbirths and pregnancy safer in rural areas, still more than three quarters births occur at home and Pakistan's maternal mortality ratio remains among the highest in South Asia.

## **Background; Maternal Health Situation in Pakistan**

### *1) Maternal Mortality with discrepancy*

Pakistan has the third most maternal deaths (27,000/year) in the world and has a high maternal mortality ratio. It is estimated that 500 maternal deaths occur per 100,000 live births (WHO, 2000). In addition, there is a sharp discrepancy in maternal mortality levels between urban and rural areas, ranging from 281 for every 100,000 live births in Karachi's urban settlements to 673 for every 100,000 live births in rural Balochistan (Tinker, 1998).

**Table 1. An overview of National Trends in Maternal Mortality Ratio (MMR)**

<i>Year</i>	<b>MMR/100, 000 live births</b>
1978, GOP	600-800
1985	500
1990	400
1995	340
1991-2000 (Average), NIPS	533
2002 GOP, MoPW	350
2004, NIPS	350-400

Sources: Children and Women in Pakistan: A Situational Analysis 1998. UNICEF.  
National Institute of Population Studies. 2004. Population Growth and its implications. Islamabad.

Pakistan is also one of the few countries in the world where female life expectancy is shorter than male life expectancy (UNFPA, 2004). Women in rural Pakistan are therefore doubly disadvantaged.

*Table 2. Life expectancy in Pakistan (1970s-2002)*

<b>Year</b>	<b>Male</b>	<b>Female</b>
1970s	53	52
1980s	59	59
1985-6	59	60
1990-1	60	61
1995-6	63	62
2002	63.7	63.4

Source: Zulfiqar A. Bhutta. 2004. Maternal and child health in Pakistan: Challenges and opportunities. Oxford University Press

### *2) Childbirth assistance and birthplace*

Countrywide, 24 percent of childbirths are attended by skilled birth assistants; the figure is 15 percent in rural areas, 49 percent in urban areas (Pakistan Integrated Household Survey [PIHS], 2001-02). The majority of childbirths (78%) took place at home; the figure is 86% in rural areas, 55% in urban areas. (PIHS, 2001-02). For economic, social, and cultural reasons, rural women have much more difficulty in accessing skilled attendants for their childbirth.

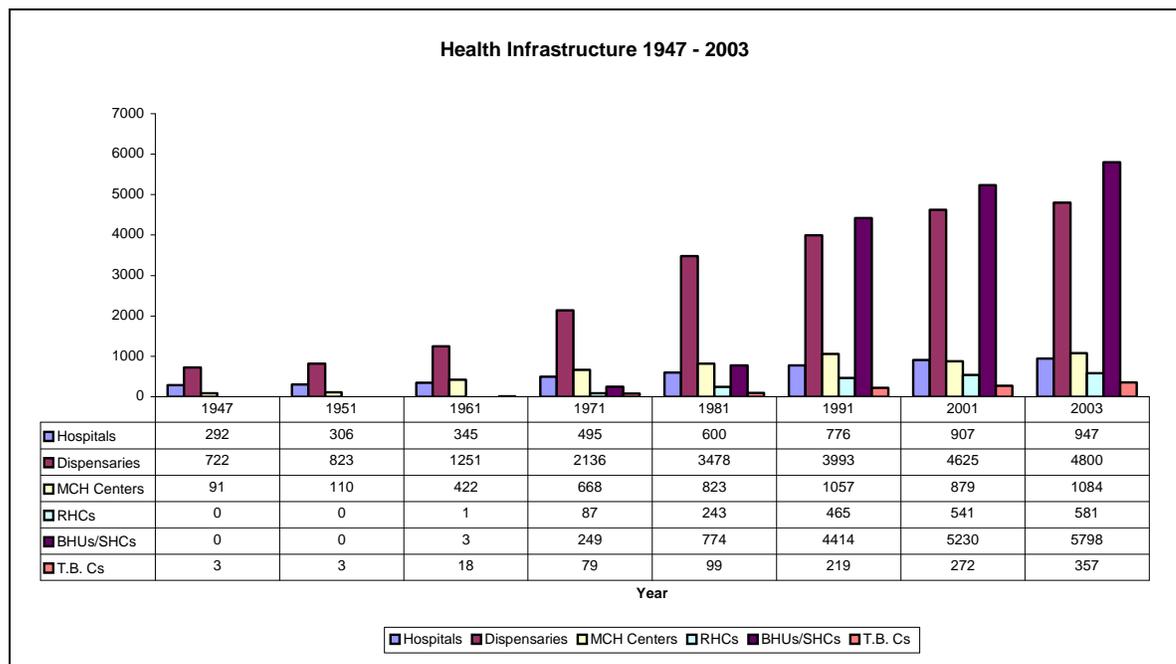
### *3) National Health policy for maternal health*

For more than five decades, the government of Pakistan has recognized the need to improve maternal health. In the first five year plan in 1955-60, priority was placed on increasing the number of MCH centers and on training Lady Health Visitors (LHV) and midwives. In those days, due to socio-cultural reasons, LHVs could not make home

visits. Instead, they worked at health care facilities, providing services only to women who were able to visit the health facility.

The government made effort to address this and established 748 Maternal and Child Health Centers (MCH centers), and 536 hospitals by 1978. Most were located in urban areas. In 1978, with the Alma-Ata Declaration, the government shifted its focus to Primary Health Care. To serve the rural population, the government built hundreds of First Level Care Facilities: Rural Health Centers (RHCs) and Basic Health Units (BHUs). This reinforced physical infrastructure at present consists of 947 hospitals with 80,655 beds, 581 RHCs, 5798 BHUs, and 1084 MCH Centers in 2004 (Government of Pakistan, 2004).

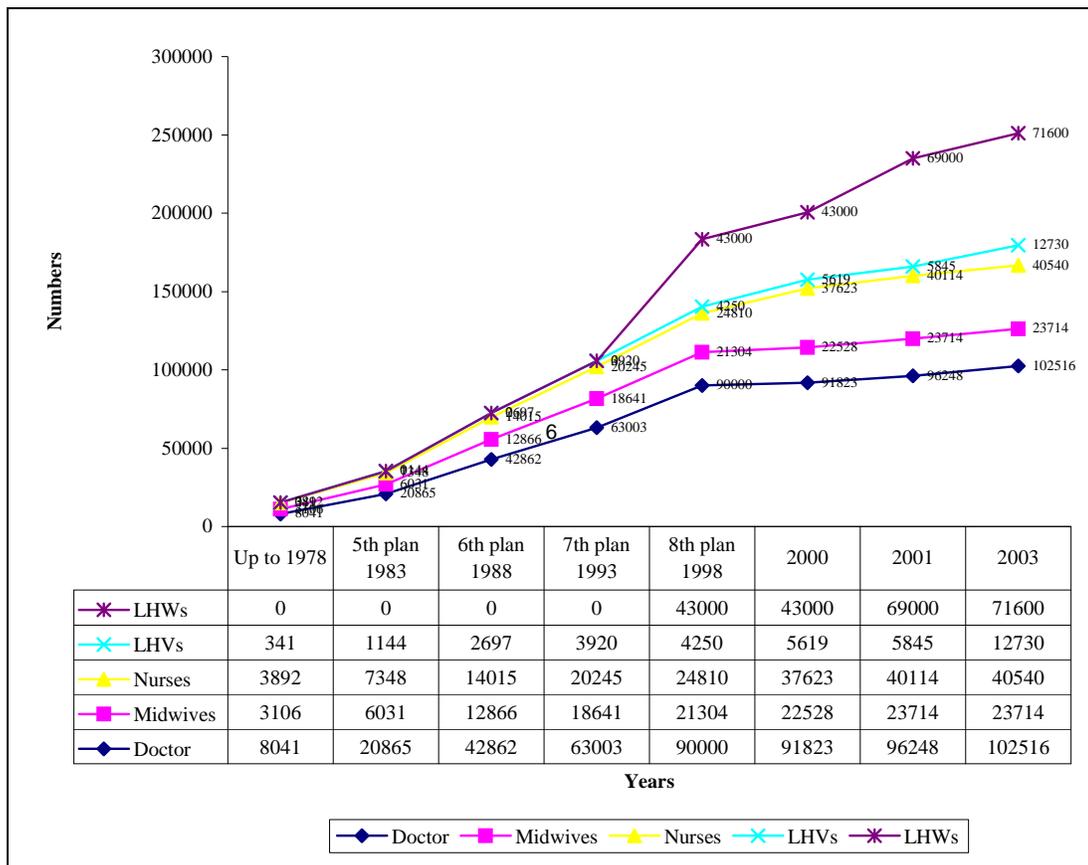
*Figure1. Health establishment / facilities in Pakistan (since 1947)*



Source: Annual report of Director General Health: 2000-2001. Ministry of Health, Government of Pakistan.

Progress on agenda for health sector reforms. Ministry of Health, Government of Pakistan. March 2004.

Figure 2. Health Manpower in Pakistan



Source: Pakistan Human Condition report 2003. UNOPS, Pakistan. Progress on agenda for health sector reforms. Ministry of Health, Government of Pakistan. March 2004.

The LHW program (formally called the National Program for Family Planning and Primary Health) is a national program, centrally funded and directed<sup>1</sup> and it seeks to provide active outreach of maternal and child health services. LHWs are contract workers hired by the program to serve populations of about 1,000. They are residents of the communities they work in, and work out of their home, which makes it easy for them to reach their clients. They are young married women aged 20-50 with at least 8

<sup>1</sup> World Bank. 2004. Devolution in Pakistan: Assessments and recommendations for action, Washington, DC.

years of schooling. Their status in the community is enhanced by the fact that their wages were initially set at a level comparable to that of primary school teachers, though their real wages have eroded over time. They operate in rural and poor urban areas, and their job is to deliver preventive and promotive health services to women and their children. By 2001, about one-third of rural communities had a LHW in the community, but coverage was low in Balochistan. In an evaluation funded by DFID, the data indicated that LHWs were effective at delivering the main services for which they were responsible: expanding use of contraception and facilitating the immunization programs<sup>2</sup>—rate for both childhood immunizations, as well as tetanus immunizations during pregnancy has improved. The presence of an LHW appears to be more strongly associated with immunization uptake than the proximity of primary health facilities, probably because they guide clients directly to mobile vaccinators. Polio immunization is delivered largely through special outreach efforts and camps, so the effect of LHWs is muted.

The presence of an LHW does not, however, significantly increase the probability of receiving prenatal consultations, skilled attendance at delivery, or postnatal care. In sum, the presence of LHWs has a strong positive impact on the use of contraceptives, which they supply to women, and on the uptake of immunization. This indicates good coordination between two national programs (EPI and LHW) that bring services to people's doorsteps. However, there is no significant impact of LHW presence on the uptake of maternal care services from government health facilities. LHWs' efforts to motivate people to access services should, *ceteris paribus*, raise the demand for and

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<sup>2</sup> Oxford Policy Management, 2002, *Lady Health Worker Programme: External evaluation of the National Programme for Family Planning and Primary Health Care*.

utilization of services—making women and their households more aware of the benefits of seeking these available services.

The *Ministry of Population Welfare* (MoPW) was established separately from the Ministry of Health in 1990; to deliver family planning services, it built health facilities called Family Welfare Centers (FWC). The Ministry of Population Welfare employs its own health workers called Village Based Family Planning Workers; 12,000 were employed in 1992. MoH and MoPW together, they comprise the government's entire stock of health facilities and personnel.

As regards family planning, 37,000 dais (indigenous midwives) worked as the main front-line field staff for family planning from 1965 to 1970; subsequently, they were replaced by full-time field workers (Everett M, 1975). After analyzing traditional midwives efforts in family planning, Paxman (1979), Everett and Douglas (1975) concluded that, unless adequate provision is made for follow-up activities by traditional midwives, their continuation rates will be lower than professional staff.

Beginning in 1997, the National Health Policy provided training to Traditional Birth Attendants and they were included in the cadre of family planning program workers. Through this intervention, the Contraceptive Prevalence Rate (CPR) was little improved compared with other South Asian countries. Today, many rural Pakistanis access maternal care and family planning services via Traditional Birth Attendants rather than LHW and VBFPW (PIHS, 2002). Douthwaite and Ward evaluated that family planning activities through LHWP have succeeded in increasing modern contraceptive use among rural women (Douthwaite and Ward, 2005). The community health workers such as dais, LHWs, and VBFPWs have contributed in raising CPR.

Despite the government's efforts, however, access to health facilities has not improved: less than 30% of the population use RHC/BHU facilities; according to studies, each person visits a RHC/BHU facility less than once per year on average, and the underutilization of government health facilities is associated with understaffing by health care professionals (especially women), high rates of absenteeism, poor quality of services, inconvenient location, and shortages of medications (Ghaffar, et al. 2000). In addition, another study pointed out that the low use of MCH centers, dispensaries, and BHUs, poor socio-economic status, lack of physical accessibility, cultural beliefs and perceptions, low literacy level of the mothers and large family size are also linked with underutilization (Shaikh, et al. 2004).

In the 1980s, Pakistan's health care strategy shifted focus to increasing access to health facilities. Female doctors' posts were created in Rural Health Centers, although most posts remained vacant (GoP and ADB, 2000). Some 33 percent of government health facilities have no female staff (Tinker, 1998). One study has indicated that only 25% of BHUs and RHCs are staffed by qualified female health professionals (Islam, 2002).

In the 2000s, health facilities and manpower increased dramatically compared to the previous five decades. The maternal health strategies focused on strengthening infrastructure such as, making buildings and training persons to encourage childbirth at facility. The reality is that such strategies did not take into consideration the actual situation of childbirth in the rural areas. Recently community health workers (LHWs and VBFPW) are trained and employed through government, but they are not allowed to assist in childbirth.

In the latest *National Health Policy of 2001*, the government focused also on promoting gender equity and for that purpose the following implementation modalities were

focused. They emphasized the following points for achieving better health for mothers and children. The *National Health Policy of 2001* states:

- Focused reproductive health services to childbearing women through a life cycle approach will be provided at their doorsteps. This will ensure provision of Safe Motherhood facilities to the majority of mothers, thereby enhancing child survival rates.
- Access to primary health services will be provided to the majority of women by expanding the Lady Health Workers Programme at the grassroots level. A cadre of 100,000 community-based trained lady health workers will provide basic services to the family at the household level.
- Emergency Obstetric Care facilities will be provided through the establishment of “Women-Friendly-Hospitals” in 20 Districts of Pakistan under the Women Health Project.
- A referral system between the village level and the Health Care facilities upto District Hospital level will be established under the Women Health Project
- More job opportunities will be provided to women as LHWs under the above programme. Additionally enrolment of Midwives, LHVs and Nurses will be progressively increased in Nursing Schools, Midwifery Schools and Public Health Schools.
- All vacancies in Government Sector of WMOs, Nurses, LHVs and Women cadres will be filled up on priority basis.

### ***Targets and Time Frame***

- By 2005, 100,000 Family Health Workers will be duly trained as community workers and deployed in the field.
- The number of nurses will increase from 23,000 to 35,000 by 2005 and 55,000 by 2010.

In addition the policy also stresses to the need decrease duplication of work by MoH and MoPW, 58,000 Lady Health Workers under Ministry of Health and 13,000 Village-based Family Planning Workers under Ministry of Population Welfare will be integrated from 1<sup>st</sup> July 2001 to create a cadre of 71,000 Family Health Workers under the National Program for Family Planning and Primary Health Care. This cadre will be increased to 100,000 by the year 2005.

#### 4) Nurse Midwife and Midwife in Pakistan

Table 3. Number of Midwifery and Nursing school

<i>Province</i>	<i>School of Nursing (SON)</i>	<i>School of Midwife (SOM)</i>	<i>Public Health School (PHS)</i>	<i>College of Nursing (CON)</i>
Punjab/AJK (Islamabad)	45 (2)	49	11	2 (1)
Sindh	22	32	2	2
NWFP	9	6	6	1
Balochistan	3	2	1	-
Total	79	89	20	5

(Source: Pakistan Nursing Council, 2000)

Table 4. Number of School of Midwife Graduate

	<i>1998</i>	<i>1999</i>	<i>2000</i>
Punjab	97	376	321
Sindh	427	360	285
NWFP	-	-	-
Baluchistan	-	-	-
Total	524	736	606

(Source: Pakistan Nursing Council, 2000)

The School of Nursing (SON) has courses for nursing for three years, and the school of midwifery for one year. Admission for both requires ten years of schooling. By 1999, a total of 1612 persons had graduated and been employed in various institutions such as government hospitals, private hospitals, or got a job in a foreign country, while some entered school for higher education. The School of Midwife (SOM) is also carrying out a 15-month course for Pupil Midwife. Requirements are similar to those mentioned above. The numbers of graduated students were 606 in 2000. The MCH center; a primary health care facility, also has posts for midwife. Government started the midwifery education since 1955, and there were about 600 graduates from midwifery school every year. Keeping in mind these facts, it was expected there would be about 27,000 midwives by 2000. During the current research, the author was unable to access the details of the employment status of midwives. It is also important to note that NWFP and Baluchistan do not have midwife graduates, mainly due to the poor literacy rate of women.

The posts for midwives are quite limited and mostly these posts are for health facilities. There are no government posts for them as community-based worker. Many of the females go to nursing school for better job opportunities in future, but due to lack of

governmental support, many of the graduates do not find suitable jobs after graduation unless they get job in the health facility, which are very limited in number. There is no midwifery school in Islamabad. It was also difficult to access data on employment status of nurses in Pakistan; hence it was assumed that there was also no proper registration system or working environment for them.

### 5) Skilled birth attendant and Health facilities in Pakistan

Table 5. Number of skilled birth attendants and per 100,000 population

Skilled birth attendant	Place of work	Number	Per 100,000 population *	Required***
Lady Health Visitors (LHV)	RHC/BHU	6397	25.30	1:4000 population
Female Welfare Workers (FWW)	FWC	4000**	(1:3953	
Midwives	MCH center	23084	population)	
Nurses	Hospital	44520	33.63	
Doctors	Hospital	102541	77.48	

Source: Pakistan Statistical Year Book 2004 (use 2002 data)

\* Population Census Organization 1998

\*\* Government of Pakistan Ministry of Population Welfare. 2000. *Draft final report for Reproductive Health Project, Pakistan*. Asian Development Bank TA3387, 5

\*\*\* Report on the Safe Motherhood Technical Consultation. 18-23 October 1977. *The Safe Motherhood Action Agenda: Priorities for the Next Decade*, Family care International. New York.47,67

Table 6. Number of health facilities and per 500,000 populations\*

Health Facilities	Number	Per 500,000 population	Required***
MCH center	862	28.80 (Basic EOC)	4
Basic Health Unit (BHU)	5308		
Rural Health Center (RHC)	550		
Hospital	906	3.42 (Comprehensive EOC)	1

Source: Pakistan Statistical Year Book 2004 (use 2002 Data)

Table 6 highlights that the number of health facilities per population meets international standards. All skilled attendants (excluding doctors) have ten years of schooling and they have obtained midwifery training also. In addition, all of them work in the facilities. It is also important to note that the numbers of existing facilities are also more than required.

A skilled attendant is defined by WHO as "an accredited health professional such as a midwife, doctor or nurse, who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the immediate postnatal period, and in the identification, management and referral of complications in women and newborns" (WHO, 2004). In Pakistan, skilled attendants that meet all these criteria work in facilities like hospitals or health centers. However, because most childbirth takes place at home; most births occur without skilled attendants. Since the majority of births occur at home, it raises the question of how women can gain access to skilled attendants continuously through out their pregnancy, delivery, and postpartum period in rural areas? Given there are a greater proportion of childbirths occurring at home in rural areas, where skilled attendants and homebirth services are

absent. It suggests there is a strong urban-rural disparity and skewing of skilled attendant in Pakistan.

#### *6) Continuity of care*

In this paper, continuity of care means pregnancy to postpartum chronologically, and changing pattern of care givers during her pregnancy to postpartum. Haggerty et al. have described three types of continuity; the first is informational, the second is the management such as a consistent and coherent approach, the third one is relationship between a patient and one or more providers (Haggerty et al.2003).

Lesley et al.(1995) have introduced the evidence about women's experiences and views on continuity of care. The consistency of care- giver and of advice have been pointed out that the community- based care was much more likely to have been provided by the same one or two people at each visit. Besides, Oakley's study (1991) have introduced as high risk mother's experience, women who had had two or more low birth weight babies saw more care- givers in the course of their antenatal care than did those having low risk pregnancies.

In making delivery safe, it is important to take into consideration the period spanning through women's life cycle. According to this study limitation, continuity of care has focused only on pregnancy related care.

#### *7) Lessons from other countries*

In Malaysia, the government has strongly supported and promoted childbirths at home attended by professionals. Malaysia is a good reference to homebirth by skilled professionals, who work in partnership with the traditional system of home deliveries

and they are supported by a strong referral network, and additionally the services are free. (Koblinsky et al, 1999) A recent study in comparing Malaysia and Sri Lanka stated that when their health systems were relatively underdeveloped, the key focus of implementation was on improving access to treatment of maternal complications. Financial, geographic, and cultural barriers to access were addressed by making competent professional midwives. (Pathmanathan et al, 2003) Hence from the early stage, both countries strengthened the profession of midwife who live in their community and manage homebirth. The number of physicians and midwives per 100,000 population in 2000 have showed that 70.2 and 33.5 in Malaysia, 42.8 and 26.6\* in Sri Lanka.<sup>3</sup>

Some countries e.g. The Netherlands, Norway, Sweden, Denmark, and Japan have experience with homebirth predominantly assisted by independent midwives.

### **Research question**

My key question is why there is no system for Nurse Midwives and Midwives in communities serving home-based birth care? I would like to explore the organizational structure effective for the home-based child birth care, thus enabling Nurse Midwives and Midwives to apply their unique ability and skills for women who give birth at home in rural areas.

One of the advantages of the professional midwife is to ensure providing continuity of care for women through out her pregnancy to postpartum, they can refer patients and also properly communicate with doctor, if necessary, who may take care of complications.

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<sup>3</sup> Data from the WHO HRH Global Atlas of Health Workforce. \* WHO Country Health Profile. Public health nurses and midwives (total 5068)

This research addresses the question of finding ways and means of increasing continuous access to skilled attendants from pregnancy to postpartum and thus making childbirth at home safer. In this paper access means actually meeting a health care provider during pregnancy, childbirth and postpartum period.

One approach is to get it through skilled home-based birth attendants; thus ensuring continuity of care from pregnancy to postpartum and consequently better outcomes for women and their babies. I will focus on the Nurse Midwife and Midwife as the skilled birth attendant, because they live close to the community and therefore are more accessible than the doctors.

## **Methods**

This paper employed two methods; literature review and data analysis. The literature review was done by reading published papers and unpublished reports as well as Pakistan government documents. The data from a survey conducted by Japan International Cooperation Agency (JICA)'s Maternal and Child Health Project was used. The purpose of JICA MCH project survey was originally to evaluate Lady Health Worker (LHW)<sup>4</sup> Training by examining changes in women's knowledge, attitudes, and practices, living in the community. All women living in rural Islamabad Capital Territory (ICT) who had given birth within the past four months were enrolled from the LHWs' registration book. The interviews were conducted in each woman's home. The survey consisted of a comparison between two samples before-and-after (pre-and-post) designed with a control group to evaluate the training program. The study area

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<sup>4</sup> LHW; The 8<sup>th</sup> grade is required. 15 months of the LHWs training. They provide essential health service through outreach to communities, at their door steps.

was divided into two parts: the intervention area in Rawat and Jhang Sayyadan, and the control area in Bhukkar, Gagri, Tumair, and Chirah (PIMS, UNDP, JICA, 1999). Ten doctors and nurses from the Maternal and Child Health Center in Pakistan Institute of Medical Science (PIMS) were trained as interviewers. A semi-structured questionnaire was used for the interviews.

Before the post-survey, the project team trained LHWs in the intervention area. The training was also provided to LHWs in the control area after the post-survey. Therefore the pre-survey data provided us the mother's knowledge, attitudes, and practices as a baseline.

For the purpose of this paper, only data from the pre-survey (both the intervention and control groups) were used. The pre-survey was conducted from May to June in 1999 in rural Islamabad. A total of 257 women were included in this study.

Islamabad Capital Territory (ICT) is divided into two areas, the urban and the rural. By vehicle it takes less than one hour from a distant area to urban Islamabad, where they can reach a tertiary hospital. In 1998, the population of the rural Islamabad was about 276,000 according to the Population Census Organization. About 57 percent of households drink well water; more than 90 percent have electricity; and 68 percent use wood for cooking (PIHS, 2002).

The survey was subject to some limitations. It polled individual women who actually used health services in rural Islamabad; therefore they are not representative of Pakistan's entire population. The survey included questions regarding women's knowledge, attitudes, and practices relative to pregnancy, delivery, and postnatal care: it did not inquire about the quality of care delivered by health care personnel.

In order to clarify the conditions under which home births take place, the study distinguishes births at home (home births) from births in such facilities as government hospitals, private hospitals, and RHCs (facility births). SPSS 10.0 for Windows was used for data analysis in this study.

## **Findings**

### *1) Socio-demographics and place of birth*

*(see Table 7)*

Women's ages, in our sample, ranged from 18 to 50 years (average 27.19 years). They had from one to nine children (average 3.2 children). More than half of mothers (54.5%) had no formal education; 19.5% had attended primary school; 5.4% had attended middle school level; 13.2% had attended school to the Matric level; 7.4% (19) had attained higher education.

The socio-demographic characteristics and the place of delivery were compared by chi-square analysis. It was found that facility birth or home birth had a statistically significant relation with socio-demographic characteristics. Women with higher educations more frequently ( $p = 0.001$ ) gave birth at a facility. Women's ages did not vary significantly between home and facility births. It was also noted that the more live children a woman had, the more she was likely to give birth at home ( $p = 0.001$ ).

Prenatal care had not been received by 19.1% of women who gave birth at home compared to 6.0% who gave birth at a facility. Facility birth was significantly more frequent than home birth if women had received prenatal care ( $p = 0.001$ ).

## *2) Birthplace and attendants*

(see *Table 8*)

In all, 61.1% of women in the study gave birth at home. The rest gave birth at health facilities such as hospitals (23.0%), private clinics (15.2%), or Rural Health Centers (0.8%). The Pakistan Integrated Household Survey (PIHS) has also shown that 86% of childbirths occurred at home in rural areas (compared to 55% in urban areas and 78% in the country as a whole).

Skilled attendants assisted 45.1% of all deliveries, doctors 33.1%, Lady Health Visitors (LHVs) 10.1%, and nurses 1.9%. Traditional Birth Attendants called dais assisted 49.8% of all deliveries. Women's relatives' assisted 4.7%; and 0.4% delivered alone. As a result, unskilled personnel assisted 54.5% of all deliveries. According to the PIHS, the most commonly cited birth assistant in rural areas was a trained dai (40% of cases), followed by traditional birth attendant (21%) and family member/relative (20%). In our study, trained dais could not be clearly distinguished from other dais.

The most common combination of birthplace and type of assistance was, delivery at home which was assisted by non-skilled personnel, accounting for more than half (53.5%).

### Home birth

Dais attended a large proportion of home births (79.0%). Skilled attendants conducted home birth in only 12.7%, and 7.6% of all home births were assisted by relatives while one woman gave birth alone.

### Facility birth

Doctors performed the majority of facility deliveries (84.0%). The rest were attended by LHVs (9%) or by a nurse (3%); dais assisted 4% of facility births. Women who gave birth at health facilities and were assisted by skilled personnel, were 96.0% of all deliveries.

### *3) Meeting with health care providers during prenatal and postnatal period*

*(see Table 9)*

Women in the survey were asked “How many times did you go to the health care provider or did they visit you during pregnancy and the postpartum period?” The purpose of this question was to determine how many opportunities a woman had to see a health care provider, because we expected that dais and LHWs who live in the same village as the pregnant women, would have more opportunities to visit her and easier access than LHVs, nurses, and doctors working in a facility. We used these data to analyze which health care provider she would most often meet with. As expected, LHWs met the pregnant and postnatal women most often, whether they gave birth at home or at a facility.

In the prenatal period, many women met with a LHW (92.2%), followed by doctor (44.4%) and then by Dai (30.7%), LHV (28.0%), and Nurse (1.9%). 1.9% of women did not contacted any health care provider.

During the postnatal period most often women met with LHW (91.8%), followed by dai (17.5%). Fewer women met with a doctor and LHV (both 7.0%), nurse (1.9%), whereas 3.1% women did not meet any health care providers.

The PIHS showed that some 35% of mothers went for a prenatal and 9% for a postnatal consultation. These rates cannot be compared with our study data directly, because we asked the number of times the women met with health care providers, not how many consultations they had. Nonetheless, consultation rates were much less in the PIHS than our survey. One possible reason is different rates of access to LHWs: in our study, women were selected by LHW's registration book. According to the PIHS, only 3% in the prenatal and 6% in the postnatal period went for consultation. Overall, women in Pakistan still have limited access to LHWs as home-based community health workers. During antenatal period, the frequencies of meeting with health care providers are as follows. They met with LHW nine times, and with other health care providers were two to three times. Similarly during postnatal period, frequencies of meeting with health care providers are as follows. They met with dai three times, and with other health care providers was one to two to times.

#### Home birth

Almost all women who gave birth at home met a LHW (93%). About one-third of these women met a dai during the prenatal period (35.7%) followed by a LHV (34.4%) or a doctor (29.9%).

In the postnatal period, 92.4% of these women met a LHW; the next most frequent was dais, who assisted most home births but met only 22.3% of women postnatal. Very few women met with a LHV, nurse, or doctor in postnatal period.

A significant proportion of home births was attended by dais (79.0%) however a few women who gave birth at home met a dai during pregnancy or postpartum.

Keeping in mind the social and cultural background, it is more likely that most women anticipate only delivery care from dais, not prenatal or postnatal care. It was also noted that women tended to have fewer prenatal and postnatal meetings with skilled personnel if, they gave birth at home than if they gave birth in a facility.

#### Facility birth

Many women who gave birth in a facility met a LHW during pregnancy and during postnatal period (90.9%). The doctors assisted most facility births, and 67% of women met the doctor during pregnancy. It is possible that women received continuity of care through out their pregnancy to delivery by doctors who worked in the same hospital. Still, only 13% of women having delivery at facility met a doctor in their postnatal period, followed by dai (10%).

#### 4) Number of health care providers with whom women have met

Table 10. Number of Health care providers with whom women have met

No.HCPs	Prenatal		Postnatal	
	Home ( n= 157)	Facility ( n = 100)	Home ( n= 157)	Facility ( n = 100)
0	1.9	2.0	3.2	3.0
1	32.5	18.0	70.7	74.0
2	37.6	62.0	21.7	21.0
3	23.6	16.0	4.5	2.0
4	4.5	2.0	0.0	0.0

HCP: Health Care Providers

Women having home-birth sought prenatal care from many health care providers than those with facility birth ( $P=0.004$ ) (*Table 10*). Further details showed that many women (71.2%) met multiple health care providers; the women who met two, three and four health care providers are 47.1%, 20.6% and 3.5% respectively.

#### Home birth

They sought care basically from LHW, Dai, and LHV during prenatal period. If women sought care from one health care provider it means most of them are LHWs, two health care providers were LHW and Dai, or LHW and LHV, or LHW and doctor. Three health care providers were LHW, Dai, and LHV. Some women sought care from four health care providers. There were various kinds of seeking care in case of home birth. Women may take a waiving course of seeking prenatal care.

During postnatal care, most of women had care from one health care provider that is a LHW. Two health care providers mean that LHW and Dai or LHW and LHV.

#### Facility Birth

Having facility birth women had more clearly choose the health care providers than the home birth. They sought care basically from Doctor or LHW during prenatal period. If women sought care from one health care provider it means many of them are LHWs the next was doctor. Two health care providers mean that most of them were Doctor and LHW. More than half on them (62%) took two health care providers. During postnatal period, facility and home birth women both were almost same pattern of seeking care. One health care provider was a LHW. Two health care providers mean that Doctor and

LHW. Three health care providers mean that was added Dai or LHV to two health care providers.

*5) Consultation following prenatal and postnatal complications*

*(Table 11)*

We asked who was consulted when complications arose during pregnancy or during the postpartum period. Eight most common complications were asked for 257 women. Most pregnant women with prenatal complications generally seek help from a health care provider; while one-third did not seek care from anyone. When care was sought, the woman was more likely to visit a hospital than to visit community health workers like LHW, LHV, and dais or low-level facilities like RHCs/BHUs. One-third of women did not receive postnatal care from anyone. Of the twenty women who had a foul smelling discharge, fifteen women (75%) did not seek care. Two women had eclampsia; both visited a hospital and were delivered there.

Home birth

*(see Graph 1)*

In total, 118 women had prenatal and 65 women had postnatal complications. About half of women with swelling and headache or weakened eyesight sought no care during pregnancy; a few visited the hospital rather than community health workers or dais. Of women with pallor of tongue or conjunctiva, abdominal pain and bleeding, 30-40% sought hospital care. One-third did not see any health care providers. Almost half of women having home-birth with prenatal complications sought no care, while one-fourth

visited the hospital. In conclusion, several women with complications did not seek care from community health workers, especially dais.

A few women with bleeding soon after delivery or a foul-smelling discharge saw a dai or a community health worker rather than visiting the hospital. One-fourth of women who had fever visited the hospital.

#### Facility birth

In total, 76 women had prenatal complications and 35 women had postnatal complications. Many women went to a hospital to seek both prenatal and postnatal care. Only a few women saw no one during pregnancy. About one-third saw no one postnatally; women with a foul-smelling discharge were an exception: most did not seek care (66.7%).

#### 5) Discontinuity in care through pregnancy to postpartum in rural Islamabad

( See Table 12)

Table 12. Percentage of continuity of care by education

n= 257	Doctor	Dai	LHV	Nurse	Discontinuity	Total
No education	1.6	9.7	0.4	0	42.8	54.5
Primary	0.8	0.8	0.4	0	17.5	19.5
Middle	0.4	0	0	0	5.1	5.4
Matric	1.2	0	0	0	12.1	13.2
Higher	1.2	0.4	0	0.4	5.4	7.4
Total	5.1	10.9	0.8	0.4	82.9	100.0

Doctor, Dai, LHV and Nurse, these four health care providers are able to provide continuity of care through pregnancy to postpartum period for women who live in rural Islamabad. In detail, continuity of care had been provided to 10.9% of women by Dai,

5.1% by Doctor, 0.8% by LHV, and 0.4% by Nurse. If it sees for educational level, Dai could likely to provide continuity of care to uneducated women and a higher educated woman, compared with doctor provided uniformly each educational level. However most of women (82.9%) could not receive continuity of care.

*See figure 3,4*

If more than 20% women have received care from health care providers at each stage, the line is drawn in these figures. There mainly exist the two way of continuity of care; one model of continuity of care is a by Dai for homebirth, another one is a by doctor for facility birth in rural Islamabad. However women did not access to doctors during postpartum period.

#### Home birth

The women who had homebirth are more inclined to seek care from multiple health personnel during normal pregnancy and postpartum, and were received continuity of care by Dai as an unskilled personnel. However if they recognized complications they have a preference for the skilled personnel. It seems that information that women received from skilled personnel is not shared with unskilled personnel who in most cases, attend her delivery. Because the vertical line of the figure 3,4 shows that there are no communication way of each health care providers without LHV and LHW relationship. It seems that they try to get better care but this care neither seem to be consistent and nor does it change their behavior in the long run. Dai could provide continuity of care to homebirth women when pregnancy progressed normal, however if women recognize some complications, most of them did not seek care (Graph 1) or took a waving course to seek care various kind of health care providers (Figure 4).

### Facility birth

The women having births at a facility tend to meet skilled personnel during her pregnancy through delivery and whenever they had any complications. Doctor ensured the continuity of care. Meanwhile, they prefer to meet unskilled attendant during pregnancy. However they had very little interaction with skilled personnel during postpartum. During prenatal period, many of them met two health care providers; doctor and LHW. During postnatal period, most of them met only a LHW. When they recognized some complications during pregnancy and postnatal, they were unshaken seeking care (Graph 1, Figure 4). They went to the doctor.

### 6) Health Expenditure

The Pakistan government spent 0.64percent of GDP on health in 2002-03<sup>\*</sup>. The health expenditure by government was 2795 million rupees in 2003-04, which come to about 0.39 percent of total expenditure. It is very small expenditure compared with recommendation given by WHO. In Malaysia, the expenditure on public health was 0.70percent of GDP in 1946-50, and reached only 1.79 percent of GDP in 1971-75.

## Discussion

### *Two models of continuity of care*

A very few women could receive continuity of care through pregnancy to postpartum period. I found two models of continuity of care for childbirth in rural Islamabad; one is home based birth by a Dai and another is facility based birth by a doctor. Providing

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<sup>\*</sup> Calculated by author; Reference, Government of Pakistan, Statistics Division, Pakistan 2004 Statistical Pocket Book

continuity of care by Dai is that women were ensured during normal process through pregnancy to postpartum period, however, women suffer to seek care from skilled personnel when pregnancy strays from normal progress. The other hands continuity of care by doctor is that a fewer women could access to them. Especially during postnatal period, less women could access to the doctor.

The women who gave birth at a facility were able to access skilled personnel at a facility. On the other hand, there were women who could not go out and do not have access to any skilled person for making their deliveries safer. Even so most of women could reach the facility did not have continuity of care. There are no ways to shear information among health care providers. It is under the situation of high Maternal Mortality, hardly access to the health facilities and people depended on traditional medicine. It is most important to make strengthen a continuity of care on the basis of two models. It means that it must not incline toward either one. In order to remain two models of continuity of care, health care providers need to collaborate.

#### *Characteristic of birthplace and underutilization of primary health facilities*

Although some SBAs are placed at the RHC/BHU and MCH center in their own community, but because for reasons stated above, these facilities are underutilized and are at times non-functional; consequently most women did not give birth at a RHC/BHU and MCH center. The experiences from some developing countries show that women utilize maternity center or maternity home in their own community before finally going to major hospital for birth. However, in our study in rural Islamabad, women did not choose giving birth at facility even if it were in their village.

This is a reason for reaming the model of continuity of care by Dai. However, Dai is not a skilled attendant, and they hardly involve into the health care system.

#### *Allocation of health care providers*

In Pakistan, the major bulk of the health care providers are doctors. The government spends a lot of money on their education and services. Ironically, most of rural women don't have access to them. Here access implies geographic, financial and socio-cultural.

In our study, it was found that most women seeking prenatal and postnatal care in rural Islamabad have easy access to a LHW. Data from the LHW HMIS (Health Management Information System) highlights that, there were 191 LHWs and 69.4% of the population in rural Islamabad had access to LHW services in 1998. However, most women in our study had met a LHW during prenatal or postnatal period. It is worthy to note here that these LHWs have not obtained midwifery training.

It has been stated earlier also that LHWs and VBFPWs are the health care provider who have access to community and they actually live with them and serve them. It seems that outreach health care service has been able to function successfully rather than facility based health care service for women's care, in rural Islamabad. In this study we did not investigate the quality of care but during the survey and interviews we found that LHW have adequate knowledge about day to day care in maternity related matters. Thus LHWs and VBFPWs are extremely important resource persons in areas with low literacy rate. Up until recent past, two ministries (Ministry of Health and Ministry of Population Welfare) were responsible for wasteful duplication of efforts and poor coordination among them (Siddiqi et al., 2003). Based on the past experience and also

the governmental statistics in Pakistan, there is always limit in human resources especially in rural area, so a rational approach regarding human resource allocation will be required. Since there is adequate number of skilled personnel, the only issue is rational allocation and improving the working environment, especially for women health workers. The latest health policy mentioned that increasing job and educational opportunity for LHWs, Midwives, LHVs and nurses. I would strongly recommend that the job opportunity should not only at the facility but also home-based care is required. The home-based include that home base health care providers provision service by doorstep.

The home –based care through pregnancy to postpartum by midwife should be free. By doing so, it may become possible to suppress a health budget low compared with facility based maternity care.

#### *Continuity of care by SBA during pregnancy, delivery and postpartum*

Both the models do not ensure continuity of care by skilled personnel throughout the period from pregnancy to postpartum. The question to consider here is how to ensure continuous care and by whom.

LHWs are providing most women with prenatal care in Pakistan these days, Unless there is a mechanism to categorically acquaint LHW and other childbirth attendants with each other, it is possible that the information which LHWs obtain from the pregnant woman is not shared with other childbirth attendants (such as Dai, relatives). By contrast, more than half of women who gave birth in a facility met with a doctor during pregnancy and were assisted by a doctor during childbirth.

A huge gap was noted among women delivering at home and those at facility, when it comes to the percentage of women with complications who seek care. Almost half of women delivering at home did not seek help from any health care providers even if they recognized complications; this is in contrast to about 80% of women who delivered at facility, sought prenatal and postnatal advice from health care providers, when required. Perhaps one of the reasons for not seeking advice during complications, for women delivering at home, was access to skilled personnel. Though not many but still few women delivering at home sought hospital care in complications. Postnatal access to health care services tend to be less frequent than prenatal access in both home births and facility births, though women need some support during this stage which is also a very important time after birth. Discontinuity of care may occur as there are no skilled attendants who can provide services during pregnancy, delivery and postpartum period. Dai who live in community could not provide consistent of care in case of complication happened. If the chronologically continuation will be made available for rural women by SBA, they should live in their community and provide service by doorstep. Moreover if the consistent of care will be made available for rural women, professional health worker is required to do so. By each health care providers have same knowledge on pregnancy and delivery, they may easy to make linkage among them. The professional midwives who live in the community and provide homebirth care is missing in the rural Islamabad. I assume that this is one of the possible reason which continuity of care can hardly provide to rural women.

### *Potential candidates for SBA*

As described above, in cases where women who deliver at home had complications during pregnancy, half sought care from a facility or LHW. These women who sought care may potentially require a SBA, since they are not available so they have no choice but to see a LHW. Accessible SBA here denotes; one who provides services at low cost, in a location that is geographically reachable, and who can communicate with local women. It is important to have an accessible SBA in order to ensure a continuous professional coverage of these women.

Considering candidates who may have potential to become SBA; to work for lowering risk of maternal and child care in rural Pakistan. They may possibly be midwives, LHV, FWW, LHW, VBFPW, and dais; but considering that they must meet the criteria of minimum qualification in Pakistan, since LHWs, VBFPW and dai do not have midwifery education, for that reason they are accessible but they can not be upgraded to become SBA.

It is also argued that LHWs are already overloaded, and for dais; it may be difficult to make them part of the current health setup, while LHV, FWW and midwife work in the facility. All of them are key persons who may provide maternal health service to rural women. Midwife and Nurse Midwife acquire the training as professional skilled birth attendant. However, there are no proper employment opportunities for them in rural Islamabad. Figure 5 show that one possible solution of continuity of care by professional Midwife and Nurse Midwife. They need to be recognized as pregnancy related health care provider by public and policy. In present, Nurse Midwife have had position in the hospital, they may difficult to work in the community. The reality is, Midwife can provide service in the community to low risk rural women. Including

future prospects, Midwife and Nurse Midwife possess potential capacity and may become the primary candidate to increase continuous access as skilled attendants from pregnancy to postpartum thus making childbirth safer at home in rural areas with low literacy rate.

### **Conclusion**

Currently, Dai has taken over the major role of childbirth in rural areas. The strategy should focus on not only to develop supporting system for dai but also to promote professional midwifery with foresight in Pakistan.

There are schools of nursing and midwifery, which are producing graduates every year, therefore as a next step government should support their contribution of home-based birth for community women and may develop guidelines for streamlining things such as rules of professional conduct, terms of reference etc in order to ensure the continuity of care for rural women.

This study highlights the importance of Midwives and Nurse Midwives in community serving rural women as a first step toward making home birth safe. Women must have continuous access to SBA and it may reduce some of geographic, cultural and financial barriers. The strategy should focus on building and improving the working environment so SBA can work in the rural areas, with better incentives, security of job and continuous support from the existing health system.

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Table 7. Characteristics of women related with place of delivery

	Place of delivery		
	% ( n )		<i>p</i>
	Home 100 (157)	Facility 100 (100)	
<b>Education</b>			.001
No education	64.3 (101)	39.0 (39)	
Primary	17.2 (27)	23.0 (23)	
Middle	5.1 (8)	6.0 (6)	
Matric	9.6 (15)	19.0 (19)	
Higher	3.8 (6)	13.0 (13)	
<b>Age</b>			
<20	3.8 (6)	3.0 (3)	
20~34	84.0 (131)	82.0 (82)	
35+	12.2 (19)	15.0 (15)	
<b>Birth order</b>			.001
1	13.4 (21)	35.0 (35)	
2~3	43.3 (68)	37.0 (37)	
4~5	29.3 (46)	20.0 (20)	
6+	14.0 (22)	8.0 (8)	
<b>Antenatal Check up</b>			.001
0	19.1 (30)	6.0 (6)	
1~4	36.3 (57)	28.0 (28)	
5+	44.6 (70)	66.0 (66)	

Table 8. Birthplace and Attendants

		Dai	LHV	Doctor	Nurse	Relative	No one	Total
<b>Home</b>	% within PLACE	79.0	10.8	0.6	1.3	7.6	0.6	100.0
	% within ATTENDAN	96.9	65.4	1.2	40.0	100.0	100.0	61.1
	% of Total	48.2	6.6	0.4	0.8	4.7	0.4	61.1
<b>Hospital</b>	% within PLACE	1.7	1.7	96.6	0.0	0.0	0.0	100.0
	% within ATTENDAN	0.8	3.8	67.1	0.0	0.0	0.0	23.0
	% of Total	0.4	0.4	22.2	0.0	0.0	0.0	23.0
<b>Private Clinic</b>	% within PLACE	7.7	15.4	69.2	7.7	0.0	0.0	100.0
	% within ATTENDAN	2.3	23.1	31.8	60.0	0.0	0.0	15.2
	% of Total	1.2	2.3	10.5	1.2	0.0	0.0	15.2
<b>RHC</b>	% within PLACE	0.0	100.0	0.0	0.0	0.0	0.0	100.0
	% within ATTENDAN	0.0	7.7	0.0	0.0	0.0	0.0	0.8
	% of Total	0.0	0.8	0.0	0.0	0.0	0.0	0.8
<b>Total</b>	% within PLACE	49.8	10.1	33.1	1.9	4.7	0.4	100.0
	% within ATTENDAN	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	% of Total	49.8	10.1	33.1	1.9	4.7	0.4	100.0

Table 9 . Percentage of women met health care providers

	Antenatal Percentage of meeting with HCPs		Delivery Assisted by		Postnatal Percentage of meeting with HCPs	
	Home (n = 157)	Facility ( n = 100)	Home (n = 157)	Facility ( n = 100)	Home (n = 157)	Facility ( n = 100)
Dai	35.7	23.0	48.2 (124)	1.5 (4)	22.3	10.0
LHW	93.0	*90.9	0 (0)	0 (0)	92.4	*90.9
LHV	34.4	18.0	6.6 (17)	3.5 (9)	7.6	6.0
Nurse	2.5	1.0	0.8 (2)	1.2 (3)	1.3	3.0
Doctor	29.9	67.0	0.4 (1)	32.7 (84)	3.2	13.0
Relative	-----	-----	4.7 (12)	0 (0)	-----	-----
No one	1.9	2.0	0.4 (1)	0 (0)	3.2	3.0
Total	-----	-----	61.1 (157)	38.9 (100)	-----	-----
*one person data missing (n= 99)						

Table 11. Seeking care of women with complications

Symptoms	Place of birth	Dai	LHW	LHV	RHC/BHU	Hospital	Others	No one	Total
Swelling (n = 58)	Home	0 (0)	8.8 (3)	5.9 (2)	5.9 (2)	20.6 (7)	0 (0)	58.8(20)	100 (34)
	Facility	4.2 (1)	8.3 (2)	4.2 (1)	4.2 (1)	70.9(17)	0 (0)	8.3 (2)	100 (24)
Headache or weak eyesight (n = 48)	Home	3.1 (1)	25.0 (8)	6.3 (2)	9.4 (3)	12.5 (4)	0 (0)	43.8(14)	100 (32)
	Facility	0 (0)	12.5 (2)	0 (0)	12.5 (2)	62.6(10)	0 (0)	12.5 (2)	100 (16)
Pallor of tongue or conjunctiva (n = 57)	Home	0 (0)	8.8 (3)	2.9 (1)	20.6 (7)	32.4(11)	5.8 (2)	29.4(10)	100 (34)
	Facility	4.3 (1)	17.4 (4)	0 (0)	4.3(1)	56.5(13)	0 (0)	17.4 (4)	100 (23)
Pain abdomen and bleeding (n = 29)	Home	5.6 (1)	0 (0)	5.6 (1)	5.6(1)	44.4 (8)	5.6(1)	33.3 (6)	100 (18)
	Facility	9.1 (1)	0 (0)	0 (0)	0 (0)	90.9(10)	0 (0)	0 (0)	100 (11)
Eclampsia (n = 2)	Home	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	Facility	0 (0)	0 (0)	0 (0)	0 (0)	100 (2)	0 (0)	0 (0)	100 (2)
Bleeding soon after delivery (n =33)	Home	14.3 (3)	9.5 (2)	14.3 (3)	0 (0)	9.5 (2)	0 (0)	52.4(11)	100 (21)

		Facility	0 (0)	0 (0)	8.3 (1)	0 (0)	75.0 (9)	0 (0)	16.7 (2)	100 (12)
		Home	14.3 (2)	0 (0)	0 (0)	0 (0)	7.1 (1)	0 (0)	78.6(11)	100 (14)
Foul smelling discharge	(n = 20)	Facility	0 (0)	0 (0)	0 (0)	0 (0)	33.3 (2)	0 (0)	66.7 (4)	100 (6)
		Home	3.3 (1)	20.0 (6)	0 (0)	3.3 (1)	26.7 (8)	6.6 (2)	40.0(12)	100 (30)
Fever	(n = 47)	Facility	0 (0)	5.9 (1)	0 (0)	0 (0)	58.8(10)	11.8 (2)	23.5 (4)	100 (17)

Graph 1. Seeking care of women with complications

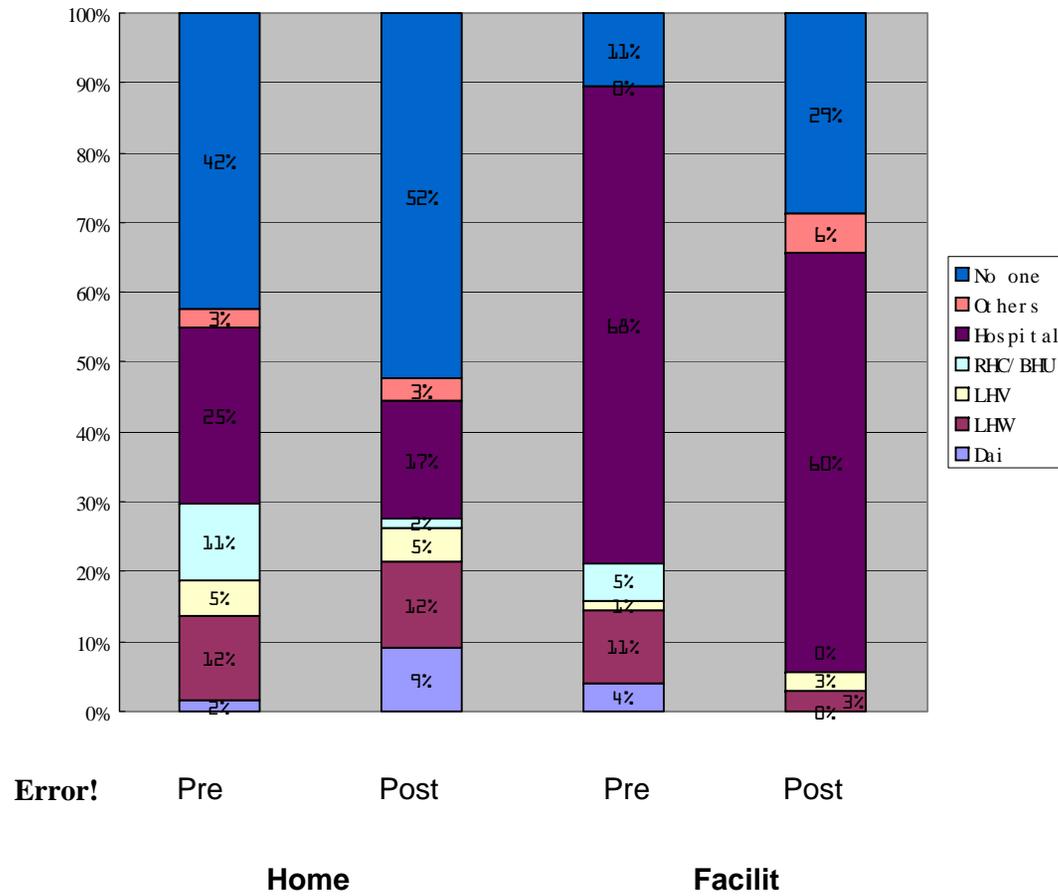


Figure3. Current situation of continuity of care (1): Normal

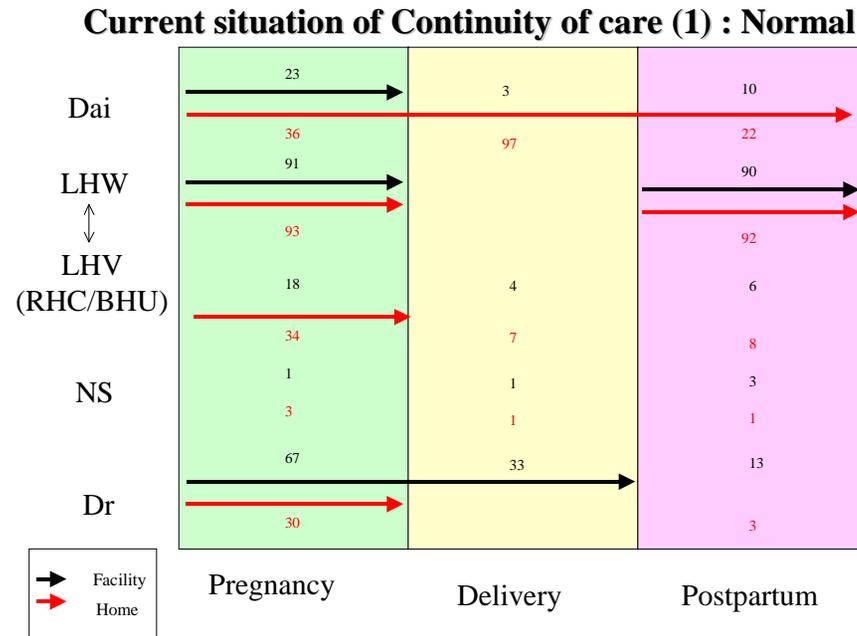


Figure 4. Current situation of continuity of care (2): with complications

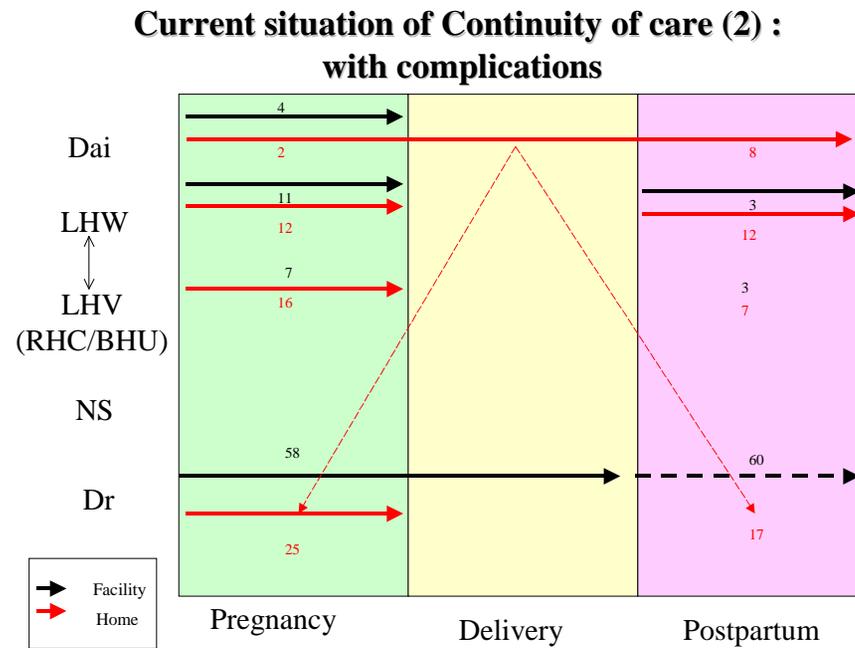


Figure 5. Desirable continuity of care

Desirable continuity of care: MW work in the community

