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Mutual Health Organizations and Reproductive Health in Senegal

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Abstract

Donors and governments are increasingly looking to community-based health insurance (CBHI) as a means of increasing access to health care and reducing the economic burden of illness in developing countries. Despite an emerging literature on CBHI, few studies have looked at its impact on access to maternal health care. To fill this gap, this study examines the impact of membership in CBHI schemes (also called mutual health organizations, or MHOs) on use of pregnancy-related care in the Thies region of Senegal.

The study primarily uses data from a household survey conducted between August and October 2004. Women between the ages of 15 and 49 in MHO member and non-member households (1,714 women) were administered the reproductive health survey, which collected information on family planning knowledge and use and maternal health care decisions and expenditures.

The study provides information on MHO coverage of reproductive health services in the Thies region. It also assesses the impact of MHO membership on access to these services by examining patterns of use of and expenditures on reproductive health services among MHO beneficiaries and non-beneficiaries. Finally, it discusses possible mechanisms by which MHOs could expand their role in efforts to promote reproductive health.

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Acronyms

CBHI	Community-based Health Insurance
CFA	<i>Franc de la Communauté Financière Africaine</i>
IEC	Information, Education and Communication
IUD	Intra-uterine Device
MHO	Mutual Health Organization
PHR<i>plus</i>	Partners for Health Reform <i>plus</i>
SES	Socio-economic Status
WHO	World Health Organization

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Executive Summary

Background and Methods

Donors and governments are increasingly looking to community-based health insurance (CBHI) as a means of increasing access to health care and reducing the economic burden of illness in developing countries. CBHI is a general term that refers to voluntary, non-profit health insurance schemes organized and managed at the community level. Despite an emerging literature on CBHI, few studies have looked at the impact of CBHI on access to maternal health care. This study aims to fill this gap by examining the impact of CBHI on use of pregnancy-related care in the Thies region of Senegal, a region that has some of the oldest CBHI schemes, called *mutuelles* (mutual health organizations, or MHOs), in West Africa.

Data for this analysis were collected in the context of a larger study conducted by the Partners for Health Reform *plus* (PHR *plus*) project that was designed to examine factors associated with financial stability and instability among MHOs in the Thies region. For the financial stability study, data were collected between August and October 2004 through a series of surveys administered to households, MHOs administrators and managers, and providers affiliated with MHOs. This study primarily uses data from the household survey component of the financial stability study, and, in particular, the reproductive health module. Women between the ages of 15 and 49 in member and non-member households (1,714 women) were administered the reproductive health survey, which collected information on family planning knowledge and use and maternal health care decisions and expenditures.

The purpose of this paper is twofold. The first is to provide information on coverage of reproductive health services by MHOs in the Thies region. The second is to assess the impact of MHO membership on access to these services by examining patterns of use and expenditures on reproductive health services among MHO beneficiaries and non-beneficiaries. In addition, this paper discusses possible mechanisms by which MHOs could expand their role in efforts to promote reproductive health.

Key Findings

MHO coverage of reproductive health services

The coverage of family planning and maternal health services by MHOs in the Thies region has expanded since the development of the first MHOs in the region in the mid-1990s. As of 2004, almost 60 percent of the 27 functioning MHOs in Thies covered basic delivery and almost one half covered prenatal care. However, less than one-third of MHOs covered delivery by cesarean section, postnatal care, and family planning services. Among MHOs providing reproductive health coverage, most cover at least 75 percent of the cost of prenatal and postnatal care and basic delivery services. Coverage rates for cesarean section are lower, with four of the seven MHOs providing this benefit covering 50 percent or less.

Enrollment in MHO schemes among women of reproductive age

While most MHOs in the Thies region require enrollment at the household level, not all individuals in the household are required to be enrolled beneficiaries under the household's membership. For most MHOs, membership fees are paid on a monthly basis, with the amount based on the number of beneficiaries in the household. Among women age 15-49 residing in member households at the time of the survey, almost one-third (27 percent) were not MHO beneficiaries. The results show that within member households, women of reproductive age who are over 40, have their own source of income, are Catholic or affiliated with a non-Muslim religion, and reside in households of higher socio-economic status are more likely to be beneficiaries. In contrast, women in households with a household head over 50 years of age and with seven or more members are less likely to be enrolled under the household's membership.

Knowledge and use of family planning

Knowledge and use of family planning is low among beneficiaries and non-beneficiaries of MHOs in the Thies region. While 61 percent of beneficiaries and 55 percent of non-beneficiaries knew of the pill, less than half were familiar with any other modern method of family planning. The injectable was the second most well-known method, with just under 50 percent of respondents citing familiarity with it. Only 23 percent of beneficiaries and 20 percent of non-beneficiaries have ever used a modern method of contraception, with the greatest percentage (13 percent) having used the pill and almost 10 percent the injectable. The wording of the questionnaire did not allow for a clear indicator of current use of family planning.

Use of maternal health services

Only women between the ages of 15 and 49 who had given birth within one year preceding the survey or were currently pregnant were asked to respond to the maternal health questions in the reproductive health module. The results presented here should be interpreted with some caution due to the resulting small sample size of 130 women.

The vast majority (97 percent) of women in the sample reported having had at least one prenatal consultation during their pregnancy. However, our results suggest that women enrolled in a MHO may be more likely to initiate care during the first trimester and to have four or more prenatal visits (though these differences were not significant at the 10 percent level). Whether or not the MHO covers prenatal care, however, appears to make a difference in when prenatal care is initiated. While 46 percent of women who were enrolled in a MHO covering prenatal care services sought care within the first three months (versus 23 percent of non-beneficiaries), only 17 percent of beneficiaries with no coverage sought early care. The majority of women surveyed sought prenatal care at the health hut or health post level.

MHO enrollment appears to have a significant effect on place of delivery, particularly among members with coverage for delivery care. A significantly higher portion of beneficiaries (87 percent) delivered at a health facility than non-beneficiaries (68 percent). In addition, beneficiaries with delivery coverage sought care at a health facility at a higher rate than beneficiaries without coverage (92 percent versus 74 percent). Even though beneficiaries were more likely to deliver at a facility, when assisted deliveries at home are taken into account, the vast majority of women reported having an assisted delivery.

Use of postnatal care is lower than use of prenatal care among beneficiaries and non-beneficiaries, with approximately 62 percent of both groups reporting having at least one postnatal

visit. As with prenatal services, our data suggest that beneficiaries may have more postnatal visits than women not enrolled in a MHO.

Out-of-pocket expenditures on maternal health care

Our results suggest that MHO beneficiaries with coverage for a particular service pay, on average, less than women with no insurance coverage, with one exception: prenatal care. It is unclear why women with MHO coverage pay approximately the same for prenatal care as women without coverage, but our data suggest this may be because women either choose a provider not affiliated with their MHO or do not know how to access their MHO benefits. Only one-third of beneficiaries with prenatal care coverage said they benefited from that coverage during their last prenatal visit. Similarly, only 56 percent of members with delivery coverage and 64 percent of members with postnatal coverage said their MHO paid a portion of the costs of those services.

1. Introduction

Donors and governments are increasingly looking to community-based health insurance (CBHI) as a means of increasing access to health care and reducing the economic burden of illness in developing countries. CBHI is a general term that refers to voluntary, non-profit health insurance schemes organized and managed at the community level. Such schemes are also called prepayment schemes, micro-insurance, or, in West Africa, *mutuelles* (mutual health organizations, or MHOs). Like traditional health insurance, they are based on the principle of risk-pooling and involve regular payments of a small premium in exchange for reducing the cost of a health service to zero or a nominal co-payment (Bennett et al. 2004). While CBHI schemes come in many sizes and forms, they share a common goal of assisting low-income households to meet their health care financing needs. In developing countries where health insurance coverage tends to be limited to urban formal sector employees, CBHI is viewed as a promising insurance mechanism for reaching households in the rural and informal sector.

Growing evidence of CBHI's potential led the World Health Organization's (WHO) Commission on Macroeconomics and Health and the World Bank, in 2001, to endorse CBHI as an alternative health financing option (Sachs 2001). Enthusiasm for CHBI has also grown among governments and communities in developing countries, which, combined with external support for the development of CBHI, has resulted in a proliferation of CBHI schemes, particularly in sub-Saharan Africa. The number of schemes in this region has grown from under a handful in the 1980s to hundreds today. In Ghana alone, the number of CBHI schemes grew from four to 159 over a two-year period in the 1990s (Bennett et al. 2004). In addition, CBHIs have been incorporated into national health financing strategies in several countries, including Tanzania, Ghana, Senegal, and Uganda.

Despite an emerging literature on CBHI,¹ few studies have looked at the impact of CBHI on access to maternal health care.² Each year more than half a million women die from childbirth and an additional 15 million experience pregnancy-related complications in developing countries. Women in sub-Saharan Africa face the highest risks, with a 1 in 13 chance of dying from pregnancy-related causes, compared to 1 in 4,085 in industrialized countries (WHO et al. 2001). Many maternal deaths and disabilities are preventable through basic care during pregnancy, referral for complications, and essential obstetric care, as well as family planning to prevent unwanted pregnancy. Despite awareness of the importance of these services to maternal health, use of them remains low in developing countries. By reducing financial barriers to care, CBHI is viewed as a way of increasing access to – and ultimately use of – these priority health services. However, to date, little information is available on the extent to which priority services are covered by CBHI schemes and whether MHO membership influences household decisions about use of these services.

This study explores the impact of CBHI on use of pregnancy-related care in the Thies region of Senegal, a region that has some of the oldest MHOs in West Africa. Like many African settings,

¹ See Tabor, Steven R. (2005) and Jakab and Krishnan (2001) for an overview of the emerging literature on CBHI. In addition, Arhin-Tenkorang (2001) provides a survey of CBHI schemes in Africa.

² Studies that have examined CBHI and maternal health care include: Diop et al. (2004), Schneider et al. (2001), Ndiaye (2004).

Senegal is characterized by high maternal mortality (690 per 100,000 women), low contraceptive prevalence (8.1 percent), and high fertility (4.98 births per woman).³ In addition, estimates suggest that almost one-third of the country lives on less than \$1.00 a day.

For our analysis, we use data collected in the context of a larger study conducted by the Partners for Health Reform*plus* (PHR*plus*) project that was designed to examine the determinants of financial stability among MHOs in the Thies region. That study collected extensive information from MHOs and health care providers in the Thies region and included a household survey containing questions on health care decisions and expenditures.

As part of the household component of the financial stability study, a reproductive health survey containing questions on family planning and maternal health care was administered to women between the ages of 15 and 49. While the family planning section was administered to all of these women, only a sub-sample – those who were pregnant at the time of the survey or had delivered within one year of the survey – were selected to respond to the maternal health questions. Our ability to evaluate the impact of MHOs is somewhat limited by the resulting small sample sizes for the maternal health analysis. Nonetheless, the data enable a valuable, if preliminary, investigation of the role of MHOs in increasing utilization of priority family planning and maternal health services.

The purpose of this paper is twofold. The first is to provide information on coverage of reproductive health services (in the context of this study, family planning and maternal health services) by MHOs in the Thies region, including how coverage has changed with the evolution of MHOs in this region. The second is to assess the impact of MHO membership on use of these services by examining patterns of use and expenditures on reproductive health services by MHO beneficiaries and non-beneficiaries. In addition, this paper discusses possible mechanisms by which MHOs could expand their role in efforts to promote reproductive health. It should be noted that some sections of this paper draw from the parent PHR*plus* report of the full household survey results of the financial stability study (Diop 2005). More detailed information on the study methodology, the Senegalese context, MHOs in the Thies region, as well as additional analyses not present in this report, can be found in the household survey report.

³ See <http://www.unfpa.org/profile/senegal.cfm> for reproductive and socio-economic indicators cited.

2. The Thies Region of Senegal

2.1 Geographic and Socio-economic Context

The Thies region is located in central-western Senegal and is the second most densely populated region in the country, with an estimated 1, 290,000 inhabitants covering 6.2 squared kilometers (2002 census, Diop 2005). The region is situated next to the industrialized and urbanized region of Dakar, which encompasses the capital city of Senegal. The city of Thies is the second largest city in Senegal, with an estimated population of 237,849 (2002 census). However, the majority of the region's population continues to reside in rural areas. The region is divided into three departments (provinces): the northern departments of Thies and Tivaouane and the southern department of Mbour.

The main economic activities in the region are agriculture in rural areas, dominated historically by peanut production, and mining in the northern part of the region. Over the last two decades, tourism and fishing have become increasingly important industries in the southern department of Mbour. Poverty is widespread throughout the region, particularly in rural areas.

2.2 Health Infrastructure

The Thies region has among the most developed health infrastructure in the country. There are three main tiers of health care delivery infrastructure in Thies, as well as in other regions of Senegal (Diop 2005). The third (lowest) tier consists of health huts, which are staffed by community health workers. The second tier consists of health posts, which supervise health activities at the health hut level, and are staffed by nurses and, in a few cases, certified midwives. The first tier of care consists of health centers, which are staffed by medical doctors, nurses, certified midwives, and dentists. All health huts and most health posts and health centers are public facilities. However, mission health posts, as well as an increasing number of private clinics, also exist in the region.

The Thies region contains one regional and one mission hospital, both of which are located in the department of Thies. The newly renovated regional hospital is considered one of the most modern hospitals in the country (Diop 2005). Founded in the mid-1980s, the mission hospital of St. Jean de Dieu also has a good reputation in the region.

2.3 Overview of MHOs in Senegal

In the Senegalese context, a MHO can be defined as “a voluntary, non-profit insurance scheme, formed on the basis of an ethnic of mutual aid, solidarity and the collective pooling of health

risks, in which the members participate in its management and functioning” (Atim 1998).⁴ Their objective is to increase access to quality health care by reducing the amount that households pay in out-of-pocket expenditures when they seek care. By pooling resources through payment of a small premium, MHOs are able to spread the financial consequences of health risks across the entire member community, thereby reducing the expected cost of seeking care to an affordable level, often a nominal co-payment. The premiums collected by MHOs are set to cover the costs of health care used by the members and administrative costs.

Senegal’s history with MHOs dates back to 1973, when attempts were made to start worker-based MHOs, later thwarted by the introduction of mandatory employer insurance funds (Franco et al. 2004). The Thies region is home to the first rural MHO in Senegal, Fandene, created in 1989 with the assistance of the Catholic diocese and the St. Jean de Dieu Hospital in the city of Thies. The success of the Fandene MHO, created and managed by villagers, gave rise in the early 1990s to MHOs in surrounding villages. By the end of the 1990s, MHOs were being created in other departments in the Thies region, including Tivaouane and Mbour. The emerging MHO movement also spread to Dakar, where MHOs were developed around various types of organizations, including trade and professional associations and women’s groups. The design and experience of MHOs in the Thies region, and Fandene in particular, provided impetus and guidance for these later MHOs.

A key element in the success of the early MHO movement in Thies was the partnership between the MHOs in the region and the missionary St. Jean de Dieu Hospital (Atim 1998). To assist in the efforts of MHOs to increase access to hospital care, the hospital gives MHO members a 50 percent discount on its services. This has allowed many MHOs to maintain affordable premiums while including higher-cost services in their benefits packages. However, over time and as the MHO movement spread to areas further away from the city of Thies, MHOs have become increasingly focused on providing members with access to preventive and primary-level care offered at health posts and health centers. As a result, after 1999, most MHOs in the Thies region had contracts with health posts (public and missionary) and, to a lesser degree, health centers (Diop 2005). As of 2004, only 16 of the 27 MHOs in the Thies region were affiliated with a hospital.

Growing donor and government interest in MHOs in Senegal and other countries in Africa has led to the establishment of organizations to support their development. In 1999, a regional forum, called the “Concertation”, was created to provide a means of information sharing among the various MHO actors in West and Central Africa, including donors, nongovernmental organizations, and other development partners. In Senegal, the government, with financial support from the World Bank, established a national agency, CAMICS (*Cellule d’appui aux mutuelles IPM et comités de santé*), to coordinate and provide technical support to MHOs throughout the country. In the Thies region, a local organization, GRAIM (*Groupe de recherche et d’appui aux initiatives mutualistes*), also was created to provide local support MHOs in Thies.

⁴ Atim (1998) notes two exceptions to the voluntary nature of most MHOs in Senegal: Education Volunteers, which has compulsory membership, and a MHO that targets street children, which is financed by an external organization.

3. Methods

3.1 Data

The data used for this study were collected in the context of a larger PHR_{plus} study of various factors affecting the financial stability of MHOs in Thies. For the financial stability study, extensive information was collected through a series of surveys administered to households, MHOs administrators and managers, and providers affiliated with MHOs. Data collection took place between August and October 2004. This study primarily uses data from the household component of the financial stability study, which looked at a variety of household characteristics and behaviors that relate to MHO expenditures and revenues, including socio-demographic characteristics of household members, health status, health care utilization, MHO membership status and regularity of MHO contributions, and expenditures (out-of-pocket and MHO) on health care services used.

For the household component, four main instruments were used to collect information from households and individual household members: a head of household questionnaire, a head of nuclear family questionnaire, a reproductive health questionnaire, and a curative care questionnaire. The reproductive health module is the main source of household data for this study, with the exception of some household-level variables derived from head of household questionnaire. In addition, we use information from the MHO questionnaire on the benefits package and coverage rates of MHOs included in the sample.

3.2 Sampling Design⁵

The study area of the household component is the target population of MHOs in the Thies region. All MHOs that had been operational for at least two years preceding the survey were included in the study, which totaled 27 MHOs. MHOs are situated in all three departments of Thies: Mbour, Thies, and Tivaouane. The sample in this study includes six MHOs from Mbour, 14 from Thies, and seven from Tivaouane.

The main household analysis compares the characteristics and behaviors of households and individual household members who are enrolled in a MHO to those who are not enrolled. In the context of this study, member households are considered *cases* and non-member households are considered as the *comparison group*.

With the household as the primary sampling unit, a paired sampling methodology was used to facilitate the comparison of members to non-members. The sampling frame included a list of MHOs and MHO members collected from the records of each MHO. Households that were members of MHOs were selected from the list of MHO members. For each MHO member household selected, a household that was not a member of a MHO was randomly selected from the same neighborhood (in

⁵ Draws from the sampling methodology section of the Diop (2005).

urban areas) or village (in rural areas). For each MHO, 20 members were randomly selected and 20 non-member households were selected to serve as a comparison group. All individuals in the selected households were included as units of observation for the study. Individuals who met the eligibility criteria were administered the head of household, head of nuclear family, reproductive health, and curative care questionnaires.

3.3 Overall and Reproductive Health Sample

Table 1 provides information on the resulting sample for the financial stability study. The sample includes 1,080 households, evenly divided between members and non-members, and 9,226 individuals. A total of 1,714 women (717 members and 997 non-members) between the ages of 15 and 49 were administered the reproductive health survey. As noted earlier, in addition to socio-demographic and other characteristics of respondents, the reproductive health survey collected information on family planning knowledge and use and maternal health care decisions and expenditures.

Table 1: Sample Size and Composition Information

	Members	Non-members	Total
No. of households	540	540	1,080
No. of heads of nuclear family	556	647	1,203
No. of individuals	4,095	5,131	9,226
No. of women of reproductive age (15-49)	717	997	1,714
No. of women who had given birth within 12 months of the survey or were currently pregnant	99	170	269
Women who had given birth within 12 months of the survey and responded to maternal health questions	47	83	130

All 1,714 women were asked the family planning questions. However, for the maternal health section of the reproductive health survey, a one-year recall period was used. Therefore, only women who were currently pregnant or had delivered a child within 12 months preceding the survey were eligible to participate. The number of women eligible for the maternal health questions was 269, 99 beneficiaries and 170 non-beneficiaries. However, 94 women were pregnant at the time of the survey (i.e., had not delivered within the preceding 12 months) and 45 observations were missing on all maternal health questions, leaving a sample size of 130 women for most of the maternal health analysis. More detailed descriptions of the family planning and maternal health samples can be found in subsequent sections of this report.

4. MHO Coverage of Reproductive Health Services

4.1 Inclusion of Reproductive Health Services in MHO Benefits Packages

The services covered in the benefits packages of MHOs in Thies have evolved and, in most cases, expanded over time. The MHOs that developed in the early to mid-1990s were characterized largely by their partnership with the missionary St. Jean de Dieu Hospital and covered mainly inpatient hospital-level care. In the late 1990s, there was increasing demand among community members for an expanded benefits package that included the preventive and primary health services they needed on a more regular basis. In response to community demands, many existing MHOs began to restructure their benefits packages in the 1990s to include curative care consultations, essential drugs, and normal deliveries provided at health posts and health centers.⁶ Learning from the experience of other MHOs in the Thies region, MHOs created after 1999 tended to place more emphasis on primary-level care from the outset.

MHO coverage of maternal health services and family planning reflect the evolution of the benefits packages among MHOs in Thies. Table 2 presents an overview of the reproductive health services covered in the initial benefits package of so-called “first generation” (pre-October 1999) and “second generation” MHOs in the Thies region. Of the 14 MHOs in Thies that were functioning prior to late 1999, only one MHO included basic delivery care in its initial benefits package. This same MHO was also the sole MHO to cover prenatal and postnatal consultations from the outset. Two other “first generation” MHOs included only delivery by cesarean section, and one additional MHO provided only family planning. In contrast, more than half of the second generation MHOs covered at least prenatal care and normal delivery care in their initial benefits package.

Table 2: Initial Benefits Packages of Pre- and Post-2000 (October 1999) MHOs^a

	Initial benefits package of pre-Oct 1999 (first generation) MHOs		Initial benefits package of second generation MHOs		
	Thies	Tivaouane	Mbour	Thies	Tivaouane
Prenatal consultation	1 ^b	0	4	2	2
Normal delivery	1 ^b	0	4	3	1
Cesarean	2	0	0	0	1
Postnatal consultation	1 ^b	0	4	2	1
Family planning	1	0	1	2	0
<i>No. of MHOs in dept</i>	<i>10</i>	<i>4</i>	<i>6</i>	<i>4</i>	<i>3</i>

^a Table cells indicate number of MHOs providing service

^b Same MHO

⁶ See Annex A for an overview of the services covered by MHOs in the initial and current benefits package.

Table 3 presents the current benefits package of MHOs in Thies. By 2004, many MHOs, both first and second generation, had restructured their benefits packages, with several adding maternal health and/or family planning benefits.⁷ Half of the “first generation” MHOs added at least one reproductive service to their benefits package. To date, however, only the one first generation MHO (located in Thies region) covers a complete maternal health package of prenatal, delivery (basic delivery), and postnatal services. Six of the newer MHOs (three in Mbour, one in Tivouane, two in Thies) offer such a package. It is interesting to note that all seven of these MHOs offering a basic maternal health package did so from the beginning. One, Grand Thialy in the department of Thies, also covers cesarean section deliveries and family planning.

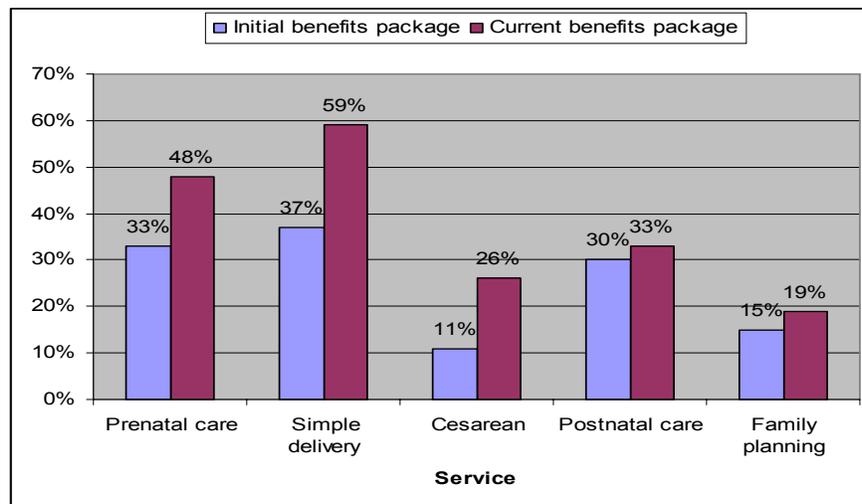
Table 3: Current MHO Benefits Packages, by Department^a

	Initial benefits package	Current benefits package by department			
		Mbour	Thies	Tivaouane	Overall
Prenatal consultation	9	4	5	4	13
Normal delivery	10	6	6	4	16
Cesarean	3	--	6	1	7
Postnatal consultation	8	4	3	2	9
Family planning	4	2	3	--	5
Number of MHOs	27	6	14	7	27

^a Table cells indicate number of MHOs providing service

Figure 1 provides a global picture of the change in reproductive health benefits among MHOs in Thies. As shown, almost 60 percent of MHOs now cover basic delivery and almost one half cover prenatal care. However, coverage of delivery by cesarean section, postnatal care, and family planning remains low, with less than one-third of MHOs covering any one of these services. Only five MHOs (19 percent) currently include family planning in their benefits package.

Figure 1: Evolution of Coverage of Reproductive Health Services by the 27 MHOs in the Thies Region



⁷ Only one MHO dropped a maternal health service, postnatal care, from its initial benefits package.

4.2 Coverage Rates for Maternal Health and Family Planning Services

Among MHOs that include reproductive health care in their benefits packages, the level of benefit varies by MHO and by service. Table 4 presents current coverage rates for each type of service. Most MHOs cover at least 75 percent of the cost of prenatal and postnatal care and basic delivery services. Coverage rates for cesarean section, a higher-cost service, tend to be lower, with four of the seven MHOs providing this benefit covering 50 percent or less. The share of the cost not covered by MHOs is paid by members in the form of a co-payment. In some cases, MHOs may pay the provider directly for services rendered to MHO members and then collect the co-payment amount from members themselves (Diop 2005).

Table 4: Distribution of Coverage Rates, by Service^a

	100%	75-80%	50%	30%	No. of MHOs
Prenatal consultation	5	6	2	--	13
Normal delivery	4	9	3	--	16
Cesarean	2	1	3	1	7
Postnatal consultation	2	5	2	--	9
Family planning	1	2	--	2	5

Table cells indicate the number of MHOs

5. Enrollment in MHO Schemes

Most MHOs in the Thies region require that enrollment in the scheme occur at the household rather than individual level, and encourage all members of the household to join. While membership status can be determined at the household level, not all individuals in a household are automatically covered by a MHO under the household membership. Only individuals who are registered under the head of household's membership are enrolled beneficiaries of the MHO. For most MHOs, membership fees are paid on a monthly basis and the amount is based on the number of beneficiaries covered under the household's membership. Membership fees among MHOs in the Thies region range from 100 FCFA (US \$0.20) per beneficiary per month to 200 FCFA (US\$ 0.40) per beneficiary per month (Diop 2005).

In the analysis of the full sample of households and individuals included in the parent *PHRplus* financial sustainability study, Diop (2005) finds that several household- and individual-level characteristics are significantly and positively associated with membership in a MHO in the Thies region. At the household level, these characteristics include: household size, the number of women of childbearing age in the household, having a female head of household, socio-economic status (SES),⁸ and affiliation with the Catholic church. At the individual level, Diop (2005) finds that households are more likely to enroll male children under 15 years of age, men above the age of 55, and women between the ages of 34 and 54. In addition, individuals with a chronic illness and with lower self-reported health are more likely to be MHO beneficiaries.

This section supplements the analysis of Diop (2005) by looking at individual and household-level characteristics associated with MHO enrollment among women of reproductive age. The reproductive health module contained several questions that aimed to assess the autonomy of women of reproductive age within the household, as well as questions about the socio-demographic characteristics of women, all of which may influence the likelihood that a woman between the ages of 15-49 is enrolled in a MHO. This analysis is presented in two parts. The first part examines the determinants of individual enrollment among all women age 15 to 49 in the sample. The second part examines the determinants of enrollment only among women who reside in member households.

The first part of Table 5 presents results of multivariate logit models of MHO enrollment among all women age 15 to 49. The results highlight similar household characteristics as those found by Diop (2005) that are associated with a greater propensity to be enrolled in a MHO. These include having a female head of household, seven or more household members, and a household head that attended school at the secondary level or higher (versus no formal education). Women in households situated in the third (versus) first SES tercile are also significantly more likely to be beneficiaries of a MHO.

⁸ SES is measured using data on monthly household expenditures per capita. For this analysis, SES terciles were constructed based on the distribution of total monthly household expenditures per capita. More information on how SES was measured can be found in Diop (2005).

Table 5: Relative Odds of Individual Enrollment in a MHO among All Women of Reproductive Age and among Women in MHO Member Households (Results are odds ratios from logit models)

	All women age 15-49		Women age 15-49 who are members of an enrolled household	
	Odds Ratio	P-value	Odds Ratio	P-value
Individual characteristics				
Age of individual				
Under 25 (R)	1.0		1.0	
25-29	0.76*	0.091	0.77	0.272
30-34	0.66**	0.022	0.55**	0.018
35-39	0.72*	0.081	1.08	0.813
40-50	1.14	0.449	1.74*	0.051
Education				
No education (R)	1.0		1.0	
Primary	1.01	0.961	1.07	0.701
Secondary or higher	1.20	0.271	1.12	0.611
Religion				
Muslim (R)	1.0		1.0	
Catholic	1.90***	0.000	1.45*	0.065
Other	1.90**	0.043	3.95**	0.018
Employment				
No paying job	1.0		1.0	
Part- or full-time job	1.77***	0.000	1.58**	0.027
Member of a community organization				
No (R)	1.0		1.0	
Yes	1.42***	0.002	1.23	0.227
Has sole or joint control over personal health care decisions				
No (R)	1.0		1.0	
Yes	0.96	0.692	1.13	0.499
Chronic illness				
No (R)	1.0		1.0	
Yes	1.03	0.800	0.95	0.795
Disability				
No (R)	1.0		1.0	
Yes	2.14***	0.001	1.13	0.123
Household characteristics				
Sex of household head				
Male (R)	1.0		1.0	
Female	1.45***	0.004	0.58	0.577
Age of household head				
Less than 40 years (R)	1.0		1.0	
40-49	0.91	0.591	0.60	0.109
50-59	0.90	0.577	0.42***	0.006
60 years +	0.72*	0.091	0.29***	0.000
Education of head of household				
No education (R)	1.0		1.0	
Primary	1.11	0.440	0.95	0.789
Secondary or higher	1.31*	0.077	1.02	0.929

Household H size					
	2 – 6 individuals (R)	1.0		1.0	
	7 or more individuals	1.57***	0.002	0.57**	0.048
SES					
	1 st tercile	1.0		1.0	
	2 nd tercile	1.10	0.502	1.44*	0.063
	3 rd tercile	1.33*	0.065	1.74**	0.016
Household composition (Reference: less than 2)					
	2+ children under 5 years of age	0.90	0.422	0.77	0.169
	2+ adults age 50 years +	1.02	0.847	0.77	0.170
Residence					
	Rural (R)	1.0		1.0	
	Urban	0.99	0.940	1.22	0.268
Region					
	Thies (R)	1.0		1.0	
	Mbour	0.72**	0.028	0.83	0.390
	Tivouane	1.27	0.139	1.48	0.122
	<i>N</i>	1614 ^a		974	

*p<0.05; **p<0.01;***p<0.001

^a SES information is missing for 100 observations

Table 5 also suggests that several individual-level characteristics are significant determinants of MHO enrollment among women of reproductive age. Women who are between the ages of 15 and 25, have their own income source, and are a member of a community organization are significantly more likely to be MHO beneficiaries. Women who have a reported disability and are Catholic or affiliated with another non-Muslim religion also have a greater likelihood of being enrolled under the household's MHO membership.

The last two columns of Table 5 shows the results of the same model when only women in member households are included. This second analysis provides interesting insights into characteristics of women age 15 to 49 that increase the likelihood that they will be provided coverage by the head of household. Almost one-third (27 percent) of women age 15 to 49 who were members of households enrolled in a MHO at the time of the survey were *not* MHO beneficiaries themselves.

The results show that within member households, women of reproductive age who are over 40 and have their own source of income are more likely to be beneficiaries. Affiliation with a non-Muslim religion and being in a higher SES household is also associated with a greater probability of enrollment under the household's membership. On the other hand, women in households with a household head over 50 years of age (versus under 40) and with seven or more household co-members are less likely to be enrolled under the household's membership.

6. Utilization of Reproductive Health Services

6.1 Family Planning

6.1.1 Characteristics of the Sample of Women of Reproductive Age

As noted earlier, the reproductive health module of the household survey was administered to all women between the ages of 15 and 49 years of age. It included three sections. The first section collected information on the socio-demographic and economic characteristics of the women surveyed. The second collected information on pregnancy-related care and expenditures among a sub-sample of women who were currently pregnant or had delivered a child within one year of the survey. The third section collected information on knowledge and use of family planning.

We begin with the family planning analysis since the family planning section was administered to the full reproductive health sample. The sample includes a total of 1,714 women between the ages of 15 and 49, 717 beneficiaries and 997 non-beneficiaries. Annex B provides a summary of socio-demographic and economic characteristics of the women surveyed. Across most individual and household characteristics, MHO beneficiaries and non-beneficiaries in the sample are fairly similar.

The age distribution of beneficiaries and non-beneficiaries is similar, with a mean age of 29.5 among beneficiaries and 28.2 among non-beneficiaries. Educational attainment is also similar with 60 percent of beneficiaries and 54 percent of non-beneficiaries having some formal education. More than half of the women in the sample (55 percent of beneficiaries and 62 percent of non-beneficiaries) are married. While the ethnic composition of beneficiaries and non-beneficiaries is also similar, the religious composition differs slightly, with non-beneficiaries having a higher proportion of women reported themselves as Muslim (78 percent versus 68 percent).

A slightly higher share of beneficiaries reported having their own source of income (35 percent versus 24 percent), being a member of a community organization (60 percent versus 47 percent), and having a disability (7 percent versus 4 percent).

Lastly, the economic profiles of beneficiary and non-beneficiary households are similar, but a slightly higher share of member households fall into the highest tercile (top 30 percent) of the index of SES, as measured by household expenditures (37 percent versus 30 percent).⁹

⁹ See Diop (2005) for a complete explanation of how household SES was measured in this survey.

6.1.2 Knowledge and Use of Family Planning

Table 6 presents knowledge and use of family planning among women of reproductive age who are enrolled and not enrolled in a MHO. Knowledge about family planning methods is similar in both groups, with approximately three-quarters of respondents expressing familiarity with at least one modern method and more than 60 percent with at least one traditional method. Respondents were relatively more familiar with the pill than other family planning methods. While 61 percent of beneficiaries and 55 percent of non-beneficiaries knew of the pill, less than half were familiar with any other modern family planning method. The injectable was the second most well-known method, with just under 50 percent of respondents citing familiarity with it.

The pattern of knowledge about family planning methods is reflected in utilization of modern contraception by respondents. The wording of the questionnaire did not allow for a clear indicator of current use of family planning. However, respondents were asked what methods, if any, they had used at least once. Ever-use of family planning is also similar among members and non-members, with the greatest percentage (13 percent) having used the pill and almost 10 percent the injectable. Few beneficiaries had tried any other modern method.

Table 6: Knowledge and Ever-use of Family Planning Methods, by Membership Status

	Knowledge of family planning method		Ever-use of family planning method	
	Beneficiaries	Non-beneficiaries	Beneficiaries	Non-beneficiaries
Modern family planning methods				
Pill	60.9	55.4	13.1	13.1
Condom	41.4	36.4	3.7	3.3
IUD	28.5	26.4	2.1	2.2
Injectable	49.8	45.0	9.5	8.2
Norplant	27.5	24.9	2.0	0.9
Diaphragm	13.1	11.1	1.0	0.7
Female sterilization	16.3	12.2	0.4	0.7
At least one modern method	77.2	75.8	23.3	20.0
Traditional family planning methods				
Periodic abstinence	19.6	16.3	19.6	16.3
Withdrawal	13.9	9.6	13.9	9.6
Periodic abstinence	47.5	41.5	2.6	2.4
LAM	18.8	20.5	3.9	1.5
At least one traditional method	64.1	61.4	10.3	5.6
N=	717	997	717	997

Table 7 displays the choice of provider for the last modern method of contraception used by respondents (among those who reported using a modern family planning method at least once). By far, the most commonly used source of the pill and injectable among members and non-members was a health post. Among women who reported last using the pill, approximately 60 percent of members and 46 percent of non-members obtained the pill from a health post. Among those whose last method was the injectable, the respective percentages were 56 percent and 66 percent.

Table 7: Choice of Provider of Last Modern Method Used

	Pill		Injection		IUD	Condom
	Beneficiary	Non-beneficiary	Beneficiary	Non-beneficiary		
Hospital	9.2	26.2	20.2	25.9	47.9	0.4
Health center	10.5	14.3	12.5	8.4	20.2	14.5
Health post/hut	61.2	45.9	56.3	65.8	12.3	0.2
Private clinic/doctor	3.7	5.4	4.8	--	--	--
Pharmacy	4.5	3.9	0.6	--	--	54.8
Traditional practitioner	--	--	2.4	--	--	--
Other	11.0	4.4	3.3	--	19.6	19.5
Don't know	--	--	--	--	--	10.7
N=	79	91	70	48	15	23

A higher percentage of non-beneficiaries than beneficiaries who last used the pill or injectable obtained it from a hospital. Approximately one-quarter of non-beneficiaries obtained the pill or injectable from a hospital. In contrast, among members, only 9 percent obtained the pill and 20 percent the injectable from a hospital. While the number of women who reported last using an IUD or condom is very small, Table 7 suggests the most women go to hospitals for an IUD and pharmacies for condoms.

6.2 Maternal Health Services

6.2.1 Characteristics of the Maternal Health Sample

As stated earlier, a one-year recall period was used for the maternal health section of the reproductive health survey module. Therefore, only women who had given birth within one year of the survey or were currently pregnant at the time of the survey were asked questions about maternal health decisions and expenditures.

Annex C provides a summary of socio-demographic and economic characteristics of the maternal health sample. Out of the full sample of women of reproductive age, approximately 16 percent were eligible to respond to maternal health questions, 99 beneficiaries (14 percent) and 170 non-beneficiaries (17 percent), a total of 269 women. However, 94 of these women were pregnant at the time of the survey and had not given birth within the previous 12 months. They were at various stages of their pregnancy and, therefore, could not be included in the analysis of antenatal care use without risk of biasing the results. An additional 45 observations were missing on all maternal health questions. As a result, the analysis of antenatal, delivery, and postnatal care among beneficiaries and non-beneficiaries is based on a sample size of only 130 women. While both bivariate and multivariate analyses¹⁰ are performed, this small sample size makes it difficult to detect small differences between member and non-members and also leads to imprecise point estimates in the multivariate models.

¹⁰ Sampling weight are used for the bivariate analysis. For the multivariate analysis, weights are not used, but the models control for variables used in the sampling design.

In general, the basic socio-demographic and economic profiles of beneficiaries and non-beneficiaries in the maternal health sample are fairly similar, with some noteworthy differences. The mean age of beneficiaries in this sample (31.7) is (significantly) higher than non-beneficiaries (27.6). The vast majority of women in the sample are married, 87 percent of MHO beneficiaries and 89 percent of non-beneficiaries. The distribution of education level among beneficiaries and non-beneficiaries is similar, with 41 percent of members and 46 percent of non-beneficiaries reporting no formal education and approximately 11 percent and 14 percent, respectively, having at least some secondary-level education.

The education level of head of households associated with respondents is also similar, with approximately one-half having no formal education. However, a greater proportion of beneficiary heads of households have attended some secondary school (24 percent vs. 15 percent). Regarding the economic profile of households, there are a larger proportion of non-beneficiaries in the lowest SES tercile, though among both groups, approximately one-quarter of women are in households in the highest tercile.

6.2.2 Results: Prenatal Care

As shown in Table 8, almost all women surveyed (97 percent) reported having at least one prenatal consultation during their last pregnancy (100 percent of beneficiaries and 96 percent of non-beneficiaries). However, a slightly higher proportion of beneficiaries (63 percent) than non-beneficiaries (53 percent) reported having four or more prenatal care visits.

Table 8: Utilization of Prenatal Care, by Beneficiary Status^a

	Beneficiary	Non-beneficiary	Beneficiary of MHO w/ prenatal care benefit	Beneficiary of MHO w/out prenatal care benefits
No. of prenatal care consultations				
No prenatal care	0.0	3.6	0.0	0.0
1 prenatal visit	5.1	3.0	6.7	0.0
2 prenatal visits	2.6	1.9	0.0	11.1
3 prenatal visits	29.8	38.9	32.3	21.6
4+ prenatal visits	62.5	52.6	61.0	67.3
N=	47	83	18	29
Timing of 1st prenatal care consultation (no. of months into pregnancy)				
< 3 months	38.9	23.0	45.7	16.8
3-5 months	59.8	70.9	54.3	77.9
6 or more months	1.3	6.1	0.0	5.3
N=	47	81	18	29

^aExcludes women in sample who were pregnant at the time of the survey
 ***significant at 1% level; ** significant at 5% level; * significant at 10% level

The last two columns of Table 8 compare use of prenatal care between beneficiaries of a MHO that covers prenatal care and beneficiaries of a MHO that provides no prenatal benefit. Among beneficiaries, 61 percent who belonged to a MHO covering prenatal care had at least four visits versus 67 percent of women whose MHO did not provide coverage.

Among women who sought prenatal care at least once, the survey also asked respondents when they initiated prenatal care. Table 8 suggests that MHO beneficiaries may initiate prenatal care earlier, with 39 percent of beneficiaries seeking prenatal care within the first three months of pregnancy versus 23 percent of non-beneficiaries.¹¹ While the sample sizes are very small, a higher proportion of beneficiaries with coverage (46 percent) sought care within the first three months than uncovered beneficiaries (17 percent).

Table 9 provides information on the provider chosen for the most recent (last) prenatal visit. The majority of women surveyed received prenatal care at a public health post or hut (77 percent of beneficiaries and 64 percent of non-beneficiaries). However, a higher proportion of women not covered by a MHO than those who were covered sought prenatal care at a health center (12 percent versus 4 percent) or with a private provider (11 percent vs. 5 percent).

Table 9: Choice of Provider at Last Prenatal Visit

	Beneficiary	Non-beneficiary	Beneficiary of MHO w/ prenatal care benefit	Beneficiary of MHO w/out prenatal care benefits
Hospital	11.9	10.9	13.3	7.4
Health center	3.8	11.9	4.9	0.0
Health post/hut	76.6	64.3	76.8	76.1
Private clinic/doctor	5.1	10.8	19.6	5.4
Other	2.6	2.1	0	11.1
N=	47	81		

***significant at 1% level; ** significant at 5% level; * significant at 10% level

While the bivariate results above suggest some differences between beneficiaries and non-beneficiaries in their prenatal care behaviors, MHO beneficiaries and non-beneficiaries may differ in ways that affect both their likelihood of being enrolled in a MHO and their likelihood to seek prenatal care, which could lead to mistakenly attributing behavioral differences to MHO beneficiary status. To try to control for these differences, which may affect the estimated association between enrollment in a MHO and use of maternal health services, multiple logistic regression analysis was also conducted.

Table 10 shows results of the logistic regression models of having four or more prenatal visits. The estimates suggest that women of reproductive age who are beneficiaries of a MHO are more likely to have four or more visits than women not enrolled in a MHO, and that beneficiaries of a MHO that covers prenatal care are more likely than beneficiaries of a MHO that provides no prenatal care coverage to have four or more visits. However, the odds ratios for each membership category are not statistically significant.

Several other patterns emerge from the prenatal care model. Women who are Catholic (versus Muslim), have a higher number of previous births, and have a household head with a primary school (versus no formal) education are significantly more likely to have four or more prenatal visits (at the 10 percent significance level or higher). The results also suggest that women who are older (versus under 25) are less likely to have four or more prenatal visits, though the odds ratio is only significant for women age 35 and older.

¹¹ It should be noted that due to the small sample sizes, differences between members and non-members would have to be very large to be statistically significant.

Table 10: Relative Odds of Having Four or More Prenatal Visits among Women age 15-49 Who Gave Birth within 12 Months of the Survey (Results are odds ratios from logit models)

	All women age 15-49	
	Odds Ratio	P-value
Individual characteristics		
MHO beneficiary status		
Not covered by MHO	1.0	
Beneficiary of MHO with prenatal care coverage	1.27	0.766
Beneficiary of MHO with prenatal care coverage	1.34	0.598
Age of individual		
Under 25 (R)	1.0	
25-34	0.45	0.141
35+	0.25*	0.053
Education		
No education (R)	1.0	
Primary	1.94	0.164
Secondary or higher	0.90	0.897
Religion		
Muslim (R)	1.0	
Catholic	4.04**	0.038
Has sole or joint control over personal health care decisions		
No (R)	1.0	
Yes	0.81	0.649
Birth history		
No. of previous births	1.2*	0.094
Household characteristics		
Education of head of household		
No education (R)	1.0	
Primary	2.61*	0.070
Secondary or higher	1.42	0.586
SES		
1 st tercile	1.0	
2 nd tercile	1.18	0.738
3 rd tercile	3.51	0.054
Residence		
Rural (R)	1.0	
Urban	1.02	0.977
Region		
Thies (R)	1.0	
Mbour	1.26	0.693
Tivouane	0.71	0.512
N	119 ^a	

*** significant at 1% level ; ** significant at 5% level ; * significant at 10% level

^a SES information is missing on 11 observations

6.2.3 Results: Assisted Delivery

As shown in Table 11, a significantly higher proportion of beneficiaries than non-beneficiaries delivered in a health facility versus at home. Eight-seven percent of members delivered at a modern facility versus 68 percent of non-beneficiaries. Among members, women who belonged to a MHO that covered delivery costs reported delivering in a health facility with greater frequency (92 percent) than uncovered members (74 percent).

Table 11: Place of Delivery, by Beneficiary Status

Place of delivery	Beneficiary	Non-beneficiary	Beneficiary of MHO with delivery coverage	Beneficiary of MHO with no delivery coverage
Health facility	86.8**	67.8	91.8	73.6
Home	13.2**	31.6	8.2	26.4
% of assisted deliveries at home ¹²	23.8 (n=7)	63.0 (n=21)	37.3	12.8
Assisted delivery at health facility or home	90.0	87.2	90.1	82.0
N=	47	83	30	17
Among those who delivered in health facility:				
Hospital	20.6	23.2	15.1	38.7
Health center	13.4	18.5	14.7	9.07
Health post/hut	61.7	46.9	64.6	52.3
Private clinic/doctor	4.3	10.5	5.6	--
Other	--	0.9	--	--
N=	39	60	27	12

*** significant at 1% level ; ** significant at 5% level ; * significant at 10% level

Among women who delivered at home, a fairly high share reported being assisted by a skilled attendant during delivery: 24 percent of beneficiaries and 63 percent of non-beneficiaries. Most women who delivered at home were assisted by a trained midwife (66 percent) or a “matrone” (34 percent). Taking assisted deliveries into account, approximately 90 percent of women surveyed reported having an assisted delivery, either at a modern health facility or at home.

Among women who delivered at a health facility, beneficiaries reported delivering in a health post or hut with higher frequency than non-members. Whereas 62 percent of beneficiaries delivered at the health post/hut level, slightly less than half of beneficiaries did. As with prenatal care, a higher proportion of non-beneficiaries reported choosing a private clinic or doctor’s office for delivery care.

Table 12 presents the results of a multivariate logit model of the determinants of delivering at a modern health facility. As was suggested by the bivariate results above, the results in Table 12 suggest that beneficiaries of a MHO are more likely to deliver at a modern health facility and, among beneficiaries, those who are enrolled in a MHO that covers delivery care are more likely to deliver at a modern health facility than enrollees with no delivery coverage. As with the prenatal model, however, the odds ratios for MHO beneficiary status are not significant.

¹² Health personnel is defined as a doctor, nurse, mid-wife, or “matrone”.

The results also show that the probability of delivering at a modern health facility decline with age (though only the odds ratio on the 25-34 age group is significant). Having a head of household with some secondary education or higher is also significantly associated with a higher probability of delivering at a modern health facility (at the 10 percent significance level).

Table 12: Relative Odds of Delivering at a Modern Health Facility among Women Age 15-49 Who Gave Birth within 12 Months of the Survey (Results are odds ratios from logit models)

	All women age 15-49	
	Odds Ratio	P-value
Individual characteristics		
MHO beneficiary status		
Not covered by MHO	1.0	
Beneficiary of MHO with no delivery coverage	1.67	0.494
Beneficiary of MHO with delivery coverage	3.19	0.203
Age of individual		
Under 25 (R)	1.0	
25-34	0.25*	0.055
35+	0.58	0.593
Education		
No education (R)	1.0	
Primary	0.44	0.163
Secondary or higher	0.94	0.962
Religion		
Muslim (R)	1.0	
Catholic	2.05	0.283
Has sole or joint control over personal health care decisions		
No (R)	1.0	
Yes	1.82	0.278
Birth history		
No. of previous births	1.03	0.843
Household characteristics		
Education of head of household		
No education (R)	1.0	
Primary	0.40	
Secondary or higher	7.61*	0.097
SES		
1 st tercile	1.0	
2 nd tercile	0.99	0.983
3 rd tercile	3.10	0.229
Residence		
Rural (R)	1.0	
Urban	3.10	0.159
Region		
Thies (R)	1.0	
Mbour	3.37	0.156
Tivouane	0.68	0.535
N	119 ^a	

*** significant at 1% level ; ** significant at 5% level ; * significant at 10% level

^a SES information is missing on 11 observations

6.2.4 Results: Postnatal Care

Utilization of postnatal care among beneficiaries and non-beneficiaries is summarized in Table 13. As this table shows, use of postnatal care is less common than prenatal care. Approximately 62 percent of beneficiaries and non-beneficiaries who delivered in the last 12 months sought postnatal care. However, a higher share of beneficiaries than non-beneficiaries (52 percent versus 27 percent) reported having three or more post-natal visits. Among beneficiaries, a higher share of beneficiaries in a MHO not covering postnatal services care sought postnatal care than did members whose costs were covered (67 percent versus 53 percent).

Table 13: Provider Choice for Postnatal Care, by Beneficiary Status

	Beneficiary	Non-beneficiary	Beneficiary of MHO w/ postnatal care benefit	Beneficiary of MHO w/out postnatal benefits
% of women who had at least one postnatal consultation	61.6	62.5	52.6	67.3
N=	47	83	19	26
Number of postnatal visits among women who sought postnatal care:				
1 visit	32.3	45.7	30.7	33.7
2 visit	14.6	27.7	9.4	18.7
3 or more visits	53.0	26.6	59.3	47.6
N=	27	49	10	18
Choice of provider among women who sought postnatal care:				
Hospital	19.2	7.4	40.4	10.6
Health center	10.0	2.0	--	17.7
Health post/hut	57.4	87.8	40.2	63.9
Private clinic/doctor	7.9	2.1	19.4	0.0
Other	5.6	4.2	0.0	7.9
N=	27	49	10	18

The most commonly used source of postnatal care among women surveyed was at the health post/hut level, where the majority of beneficiaries and non-beneficiaries sought a postnatal consultation, 57 percent and 88 percent, respectively. A higher proportion of beneficiaries, however, received postnatal care at the hospital level (19 percent) than non-members (7 percent).

Table 14 presents the results of multivariate logit models of having at least one postnatal care visit. As in previous models, the coefficients on MHO beneficiary status are not significant. In contrast to the results of the logit models of use of prenatal and delivery care, however, the results in Table 14 show that the likelihood of seeking prenatal care increases significantly with age. The results also suggest that residence in an urban area is associated with lower odds of seeking postnatal care, a somewhat surprising result.

**Table 14: Relative Odds of Seeking at Least One Postnatal Care Visit
(Results are odds ratios from logit models)**

		All women age 15-49	
		Odds Ratio	P-value
Individual characteristics			
MHO beneficiary status			
	Not covered by MHO	1.0	
	Beneficiary of MHO with no postnatal care coverage	0.65	0.482
	Beneficiary of MHO with postnatal care coverage	1.22	0.775
Age of individual			
	Under 25 (R)	1.0	
	25-34	2.79*	0.059
	35+	3.64*	0.098
Education			
	No education (R)	1.0	
	Primary	0.45	0.102
	Secondary or higher	2.37	0.314
Religion			
	Muslim (R)	1.0	
	Catholic	1.58	0.441
	Other		
Has sole or joint control over personal health care decisions			
	No (R)	1.0	
	Yes	0.56	0.222
Household characteristics			
Education of head of household			
	No education (R)	1.0	
	Primary	0.67	0.460
	Secondary or higher	1.01	0.986
SES			
	1 st tercile	1.0	
	2 nd tercile	0.79	0.650
	3 rd tercile	0.41	0.159
Residence			
	Rural (R)	1.0	
	Urban	0.40*	0.075
Region			
	Thies (R)	1.0	
	Mbour	0.50	0.239
	Tivouane	0.82	0.692
N		119 ^a	

*** significant at 1% level ; ** significant at 5% level ; * significant at 10% level

^a SES information is missing on 11 observations

6.2.5 Results: Expenditures on Pregnancy-related Care

All women who used a maternal health care service were asked a series of questions related to payment of the services they received. Each respondent was asked whether or not they paid the provider directly for the service and, if the answer was positive, they were then asked how much they paid. If they said they did not pay the provider at the time of service, they were then asked why, including whether the MHO paid the cost of the service in full. MHO beneficiaries were also asked if the MHO covered any portion of the cost of the service.

Table 15 presents mean out-of-pocket expenditures for prenatal, delivery, and postnatal care for two groups of respondents: (1) beneficiaries of a MHO that provided coverage for that particular service and (2) MHO beneficiaries whose benefits package did not include the particular service, combined with non-members. For prenatal and postnatal care, respondents were asked about payment for all services received during their last visit. For delivery costs, respondents were asked about the total cost of all delivery-related services.

Table 15: Mean Out-of-pocket Expenditures (in CFA) on Pregnancy-related Care, by Coverage Status and Service (Parentheses indicate range of expenditures reported)*

	Beneficiary of MHO covering service	Respondents with no MHO coverage (beneficiaries and non-beneficiaries)
Prenatal care <i>N</i> =	1,281 (0-9,998) 37	1,243 (0-10,000) 159
Delivery <i>N</i> =	7,548 (0-27,250) 20	9,369 (0-55,000) 83
Postnatal care <i>N</i> =	358 (100-500) 7	2,277 (0-24,000) 54

* Excludes respondents who did not pay because they did not have money at the time of service (or for other unspecified reasons) and those who could not recall the amount they paid. In addition, one outlier response from a member is excluded. Respondent who did not pay because the MHO paid in full are coded as paying "0".

In the case of prenatal consultations, women who were pregnant at the time of the survey and sought prenatal care are included in Tables 15 and 16. Approximately half of the members who sought prenatal care belonged to a MHO with prenatal coverage. As shown in Table 15, mean expenditures among members with coverage (1,281 CFA) were roughly the same as (but slightly greater than) the mean among women with no coverage (1,243 CFA). However, in the case of delivery and postnatal care, on average, women with no coverage paid significantly more than members. In addition, for delivery and postnatal care, the upper bound of the range of out-of-pocket expenditures reported is significantly higher for women with no insurance coverage.

Members who used a particular maternal health service were also asked whether or not the MHO to which they belonged paid any portion of the cost of the service received. Despite several missing values, the responses to these questions provide preliminary insight into why mean out-of-pocket expenditures for prenatal care are roughly the same for women with and without insurance coverage. As shown in Table 16, only one-third of members with prenatal care coverage said that their MHO paid some portion of the cost of the services they received during their last visit. A higher proportion of members with delivery and postnatal care coverage said that they benefited from their MHO at the time of service (56 percent and 63 percent, respectively).

Table 16: Percentage of Beneficiaries of a MHO Covering Reproductive Health Service Who Reported Benefiting from MHO Coverage, among Women Who Used Service

	Percentage	<i>N</i>
Prenatal care	33.3	30
Delivery	56.0	25
Postnatal care	63.6	11

One reason why MHOs may not have paid for the maternal health services received by members is that members sought care at a provider not affiliated with their MHO. Among covered members who sought prenatal care, almost half (46 percent) said the provider for their last prenatal visit did not have a contract with their MHO. Interestingly, an additional 15 percent reported that they did not know if the provider had a contract with their MHO, suggesting that some women may not be aware of the coverage available to them under their MHO. Unfortunately, in the case of delivery and postnatal services, women were not asked about the provider's relationship with their MHO.

7. Discussion and Conclusion

7.1 Discussion of Family Planning Results

Our data suggest that knowledge and use of family planning is low in the Thies region among both MHO beneficiaries and non-beneficiaries. This is consistent with recent estimates, suggesting that contraceptive prevalence across Senegal as a whole remains under 10 percent. While MHO coverage of reproductive health services has expanded over time, only five of the 27 MHOs in the Thies region currently cover family planning services. The low coverage of family planning is not unusual among MHOs in Africa, where contraceptive prevalence rates and demand for family planning tends to be low (Feeley 2003). In addition, some MHOs in the Thies region have contracts with missionary health facilities that may not provide family planning services.

There are several ways in which MHOs can assist in efforts to increase awareness about, and potentially use of, family planning.¹³ One indirect way is by improving access to health services and, by doing so, increasing members' contact with health personnel who can provide information about family planning. More frequent contact with providers, however, will only be effective if providers are trained and willing to provide information on reproductive health. MHOs could try to facilitate the dissemination of information about family planning at the health facility level through advocacy efforts with providers.

MHOs are also well positioned to play a more direct role in raising awareness of and access to family planning options among their members. MHOs can integrate information on family planning into existing information, education and communication (IEC) efforts for members and engage MHO administrators and members in discussions about family planning topics. In cases where a MHO and/or health centers to which they are linked have a religious affiliation, they can provide information on traditional methods of child spacing.

Many MHOs can also facilitate the use of family planning by including family planning products and services in their benefits package. In most cases, however, the services included in MHO benefits packages are selected by the member community based on what they perceive to be priority health services. Since family planning is not considered as high a priority as some other services, and its inclusion in the benefits package may result in an increased premium, it may be challenging for MHOs to include family planning coverage. A recent qualitative study carried out by *PHRplus* in Senegal indicated that MHO beneficiaries understand the potential trade-off involved in expanding the benefits package to include (more) reproductive health services (Ndiaye 2004). In focus groups, female MHO beneficiaries expressed general satisfaction with schemes' coverage of health services, but that they would like to see reproductive health and family planning benefits expanded. They also acknowledged, however, that doing so may increase premium levels.

¹³ This discussion draws heavily on previous *PHRplus* discussions on this topic summarized in the *PHRplus* brief entitled "Using Mutual Health Organizations to Promote Reproductive Health."

7.2 Discussion of Maternal Health Results

As with family planning, MHO coverage of maternal health services has also expanded over the last five years. At the time of this survey, almost 60 percent of MHOs covered basic delivery and one half covered prenatal care. However, less than one-third of MHOs covered delivery by cesarean section and postnatal care.

While the maternal health findings should be interpreted with some caution due to the small sample sizes, the results of this study suggest that MHO membership may lead to greater use of some maternal health services, particularly when such services are covered under MHO benefits packages.

While the vast majority of all women surveyed reported having at least one prenatal consultation during their pregnancy, our results suggest that women enrolled in a MHO may be more likely to initiate care during the first trimester and to have four or more prenatal visits, though differences in utilization of prenatal care were not found to be significant at the 10 percent level. Whether or not the MHO covers prenatal care, however, appears to be important to when prenatal care is initiated among beneficiaries. MHO enrollment appears to have a significant effect on place of delivery, particularly among members with coverage for delivery care. A significantly higher portion of beneficiaries reported delivering at a health facility than non-beneficiaries. In addition, MHO beneficiaries with delivery coverage sought care at a health facility at a higher rate than beneficiaries without coverage. Even though beneficiaries were more likely to deliver at a facility, however, when assisted deliveries at home are taken into account, the vast majority of women reported having an assisted delivery.

Use of postnatal care is lower than prenatal care among beneficiaries and non-beneficiaries, with approximately 62 percent of both groups reporting having at least one postnatal visit. As with prenatal services, our data suggest that beneficiaries may have more postnatal visits than women not enrolled in a MHO.

Regarding out-of-pocket expenditures on maternal care, our results show that members with coverage for a particular service pay, on average, less than women with no insurance coverage, with one exception: prenatal care. It is unclear why women with MHO coverage pay approximately the same for prenatal care as women without coverage, but the data suggest this may be because women either choose a provider not affiliated with their MHO or do not know how to access their MHO benefits. Only one-third of members with prenatal care coverage said they benefited from that coverage during their last prenatal visit. Similarly, only 56 percent of members with delivery coverage and 64 percent of members with postnatal coverage said their MHO paid a portion of the costs of those services.

As with family planning, MHOs may be able to play a more active role in promoting the use of maternal health services by increasing the number of services they include in their benefits package. Currently, only seven of 27 MHOs provide a basic package of prenatal, basic delivery, and postnatal care. In addition, MHOs can assist in efforts to increase use of postnatal care through IEC efforts with members and advocacy among providers.

7.3 Conclusion

While most MHOs in Senegal are less than a decade old and are still in a developmental phase, this preliminary study suggests that CBHI has the potential to improve access to and use of reproductive health care. Due to the small sample size on which these results are based, additional research is needed to strengthen our understanding of the extent to which MHOs are meeting

reproductive health needs, the constraints they face, and their effectiveness in promoting reproductive health services.

Annex A: Summary of Current MHO Benefits Packages

Services or products	Initial benefit package	Current benefit package by department (province)			
		Mbour	Thies	Tivaouane	Total
Curative care consultation	14	5	12	6	23
Essential drugs	15	6	10	7	23
Brand name drugs	3		2		2
Lab exams	10	1	9	3	13
Inpatient care (Hospitalization)	19	3	13	6	22
Surgery	3		4	3	7
Prenatal care consultation	9	4	5	4	13
Simple delivery	10	6	6	4	16
Cesarean	3		6	1	7
Postnatal consultation	8	4	3	2	9
Family planning	4	2	3		5
Immunization	8	5	4	1	10
Number of MHOs	27	6	14	7	27

Annex B: Characteristics of Reproductive Health Sample

Socio-demographic Characteristics of the Sample of Women Age 15-49

	Member	Non-member
INDIVIDUAL CHARACTERISTICS		
Age		
15-24	39.1	40.7
25-29	15.2	17.2
30-34	12.4	14.5
35-39	11.3	12.8
40-49	22.0	14.7
Education		
No formal education	39.9	46.2
Primary education	31.2	31.2
Secondary education	28.9	22.6
Marital status		
Single	38.9	35.0
Married	55.0	61.8
Widowed	2.4	1.5
Divorced or separated	3.7	2.4
Ethnic group		
Wolof	37.4	37.7
Serer	33.9	35.0
Poular	15.7	14.5
Other	13.1	12.8
Religion		
Muslim	67.7	77.8
Christian	28.2	19.7
Other	4.2	2.5
Other individual characteristics		
Has a paid job	35.0	23.0
Member of a community organization	60.0	47.1
Has sole or joint control over personal health care decisions	43.1	38.6
Has a chronic illness	17.6	16.6
Has a disability	7.4	4.4

HOUSEHOLD CHARACTERISTICS		
Female head of household	30.0	22.3
Age of household head		
Less than 40 years	13.8	14.4
40-49	30.1	27.8
50-59	28.3	25.6
60+	27.9	32.3
Household size		
2-6 individuals	20.3	21.7
7+	79.7	78.3
Household composition		
2+ children under 5 years of age	19.6	23.0
2+ adults age 50 years or older	25.5	26.9
Education of household head		
No formal education	51.7	57.9
Primary education	25.3	25.1
Secondary education or higher	22.9	16.9
SES		
1 st tercile	31.6	34.9
2 nd tercile	31.6	34.4
3 rd tercile	36.9	30.7
Type of residence		
Urban	52.7	47.4
Rural	47.3	52.6
Department		
Mbour	22.6	19.8
Thies	45.6	55.3
Tivouane	31.8	27.8
N*=	717	997

* Due to missing observations for some socio-demographic variables, the total sample size ranges from 1,714 (717 member and 997 non-member) to 1,613.

Annex C: Characteristics of Maternal Health Sample

Socio-demographic Characteristics of the Sample of Women Age 15-49 Who Delivered within One Year of Survey

	Member	Non-member
INDIVIDUAL CHARACTERISTICS		
Age		
15-24	17.4	32.1
25-29	21.7	29.8
30-34	17.4	21.4
35-39	32.6	14.3
40-49	10.9	2.4
Education		
No formal education	41.3	46.4
Primary education	47.8	39.3
Secondary education	10.9	14.3
Marital status		
Single	8.7	9.6
Married	87.0	89.1
Divorced or separated	4.4	1.2
Ethnic group		
Wolof	39.1	36.1
Serer	17.4	10.8
Poular	37.0	39.8
Other	6.5	13.3
Religion		
Muslim	63.0	82.1
Christian	32.6	16.7
Other	4.4	
HOUSEHOLD CHARACTERISTICS		
Education of household head		
No formal education	46.0	48.6
Primary education	29.9	36.1
Secondary education or higher	24.1	15.3

SES		
1 st tercile	34.9	42.5
2 nd tercile	37.2	32.5
3 rd tercile	27.9	25.0
Type of residence		
Urban	34.8	34.5
Rural	65.2	65.5
Department		
Mbour	17.4	26.2
Thies	45.7	42.9
Tivouane	37.0	31.0
N*=	46	84

* Due to missing observations for some socio-demographic variables, the total sample size ranges from 130 to 123.

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